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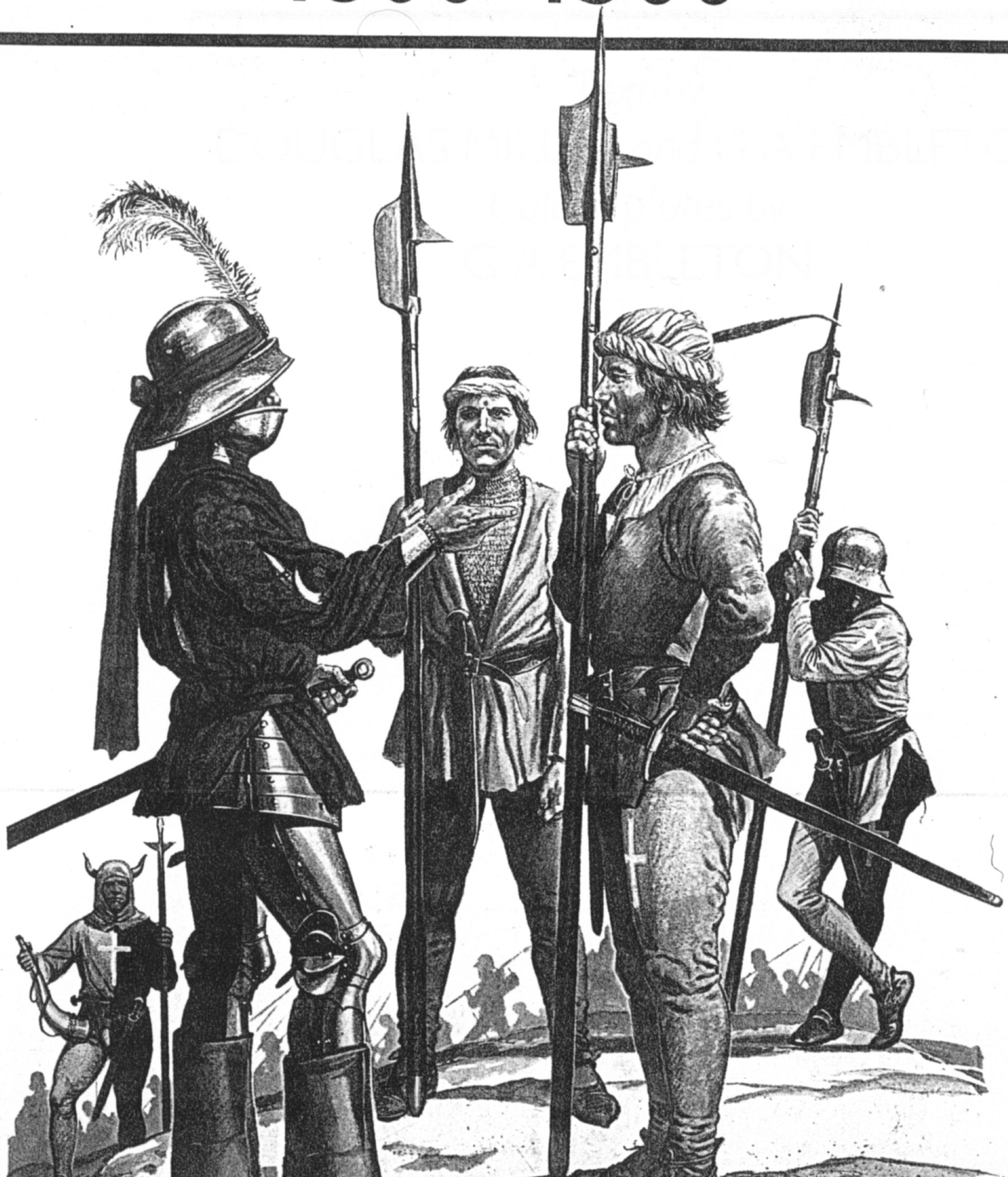
MEN-AT-ARMS SERIES 94

THE SWISS AT WAR
1300-1500



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Introduction

We have tried in this book to reconstruct as far as possible the costume and weapons of the lower ranks of the Swiss, and to outline, on the basis of illustrative material, the armour of the wealthier Swiss. As will appear, there does not seem to have been a particular national costume style, and armour during the 15th century was considerably influenced by German and Italian modes. Some of the Swiss nobles served abroad, and no doubt imported these fashions on their return.

Due to the somewhat patchy state of information on costume and armour in Switzerland during the late 14th and early 15th centuries, and the constraints of space in a book of this type, we have chosen to concentrate on the fascinating period from the middle to the end of the 15th century, embracing the Burgundian Wars and the rise of Swiss military might to its zenith. This has still presented us with agonizing problems of selection: the material from the marvellous Swiss chronicles of the period, and the very large number of surviving banners, would alone fill a larger book than this.

* * *

During the 14th and 15th centuries military tactics in Europe underwent a period of sustained transformation of which the outcome was the rejuvenation of the footsoldier as the major tactical unit. One nation alone stands principally responsible for these developments—the Swiss Confederation.

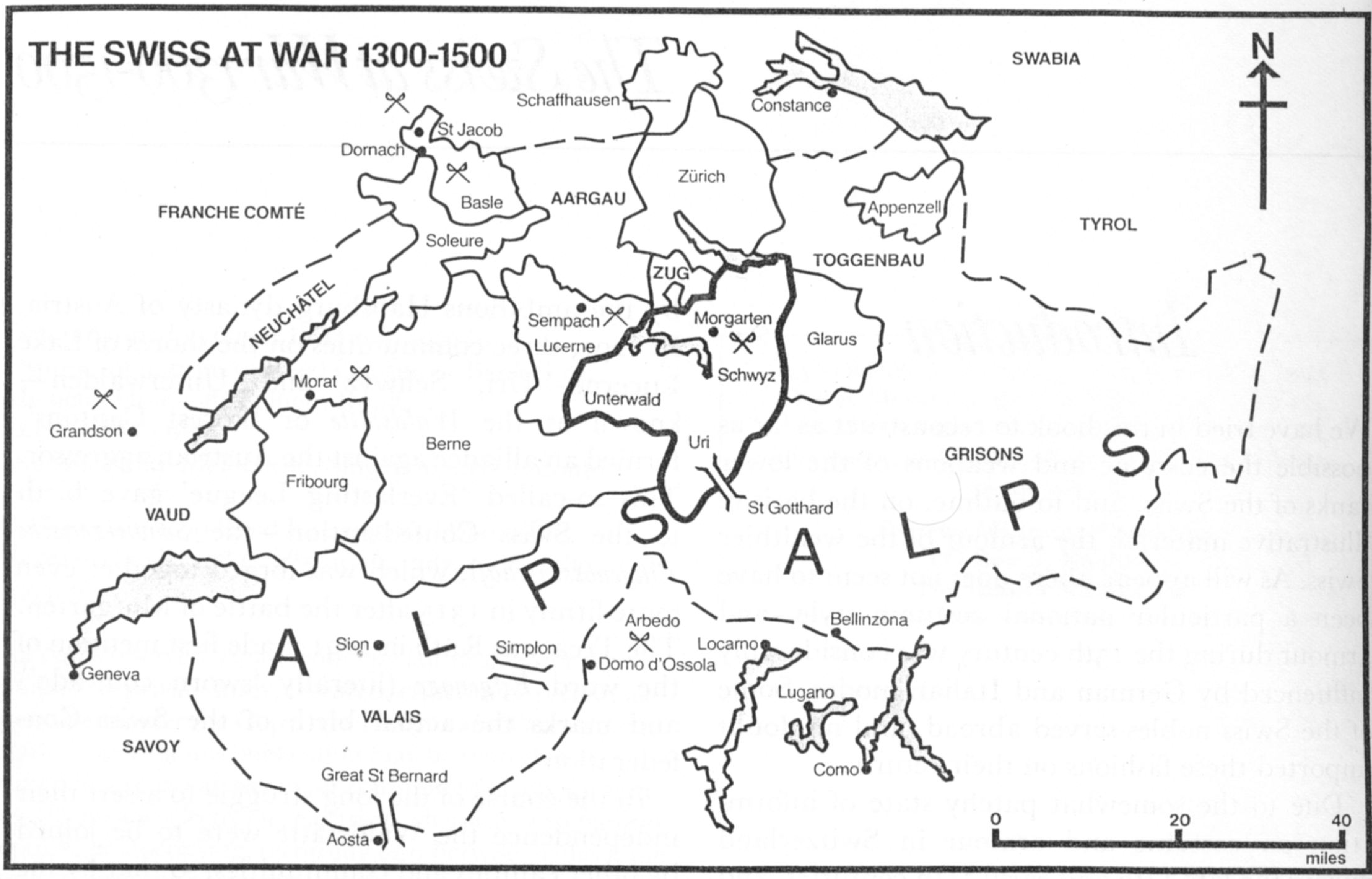
The original Swiss were known as Helvetii, or Helvetic Celts. They were subdued by the Romans, and thus became free-born subjects of the Roman Empire. Despite many invasions from east and west, they remained free until the 13th century, when their independence was threatened by the ambitious Habsburg dynasty of Austria. In 1291, three communities on the shores of Lake Lucerne—Uri, Schwyz and Unterwalden—known as the *Waldstätte* or 'Forest Cantons', formed an alliance against the Austrian aggressor. This so-called 'Everlasting League' gave birth to the Swiss Confederation—the *Schweizerische Eidgenossenschaft*, which was forged together even more firmly in 1315 after the battle of Morgarten. The Treaty at Rütli in 1291 made first mention of the word *Eitgenoze* (literally 'sworn comrade') and marks the actual birth of the Swiss Confederation.

In the course of the long struggle to assert their independence the Waldstätte were to be joined by other cantons and communities, so that by the beginning of the 16th century the Confederation had thirteen members.

During the struggle for Swiss independence, the 'New Romans' (as they were later to be termed by Machiavelli) were to become the most powerful and feared military force in Europe. For centuries the mounted knights, as Oman states, 'had ridden roughshod over the populations of Europe'. It was in the Swiss halberdier and later the pikeman that the mounted men-at-arms were to meet their match in the 14th and 15th centuries. This book traces these tactical developments and outlines the organization, weapons and costume of the Swiss during this period.

Organization

One of the major factors contributing towards the military effectiveness of the Swiss was the ability of the Confederation to put a great number of men swiftly into the field. This was greatly facilitated by the introduction of conscription around the middle of the 15th century, so that


THE SWISS AT WAR 1300-1500
SWABIA
N
Schaffhausen
Constance
St Jacob
Dornach
Zürich
Basle
AARGAU
Appenzell
FRANCHE COMTÉ
TYROL
Soleure
TOGGENBAU
ZUG
NEUCHÂTEL
Sempach
Morgarten
Lucerne
Glarus
Morat
Schwyz
Unterwald
Grandson
Berne
Uri
GRISONS
Fribourg
VAUD
St Gotthard
ALPS
ALPS
Arbedo
Bellinzona
Locarno
Sion
Simplon
Domo d'Ossola
Geneva
Lugano
VALAIS
SAVOY
Great St Bernard
Como
Aosta
0
20
40
miles

Map of Switzerland showing the Thirteen Cantons 1315. The heavy outline marks the Forest Cantons (Waldstätte); the uninterrupted lines are the boundaries of the respective cantons, while the dotted line marks subject territories and Allies.

during the existence of the Eight Cantons some 54,000 men could be put into the field. Generally the numbers to be conscripted were determined by the cantonal and local councils of elders. Basically there were three categories of soldier: the *Auszug*, the *Landwehr*, and the *Landsturm*. The Auszug was the élite corps and comprised the younger, usually unmarried men aged between eighteen and thirty. The Landwehr was formed from those older men who would be prepared to leave home if the need arose. The Landsturm was the equivalent of the *levée en masse*, and was resorted to only in times of general emergency, for which a special system of communication was developed.

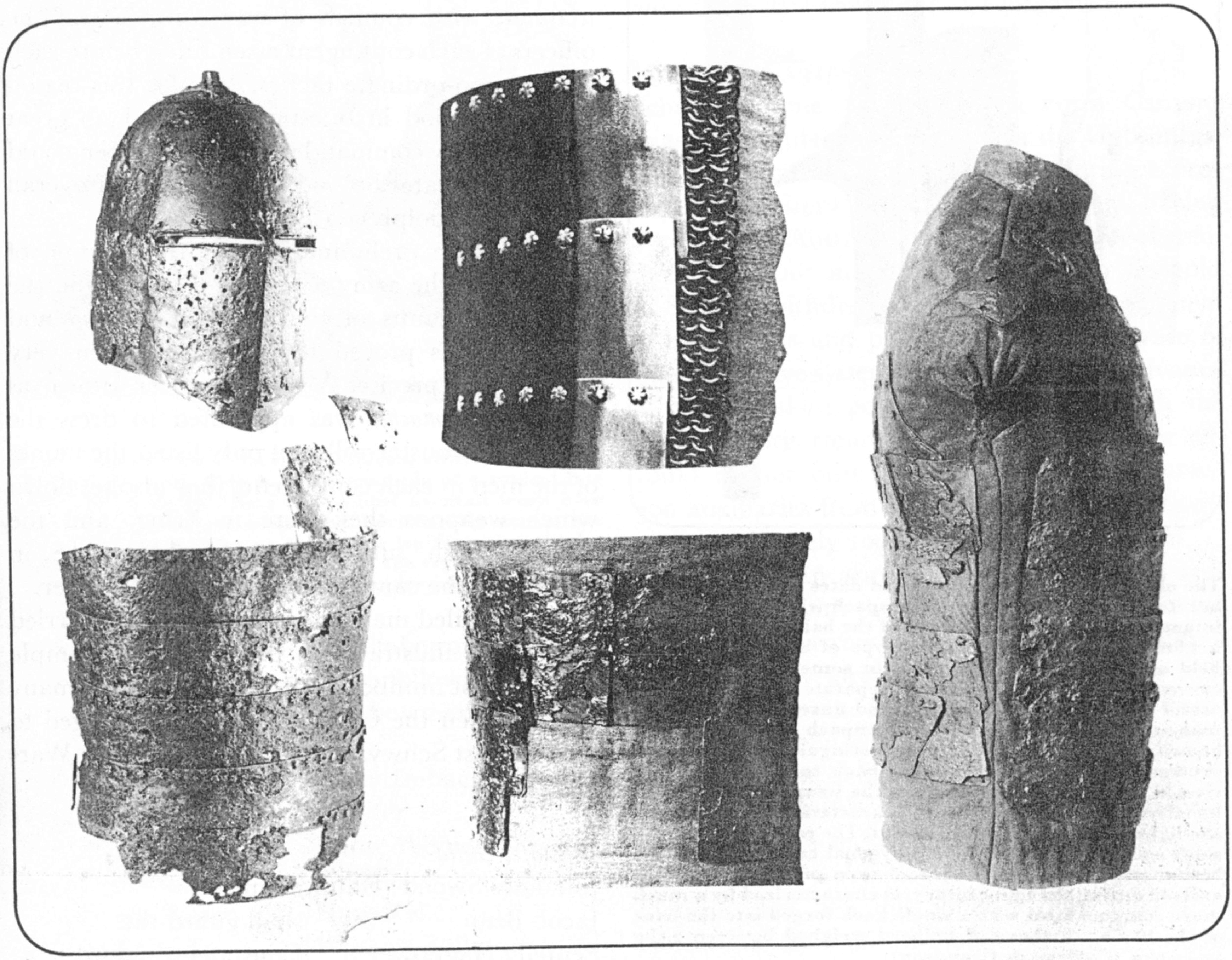
Each soldier was obliged to buy his own armour and weapons, although if they were damaged the canton or community was responsible for the repairs. In the cities, the guilds and in the outlying communities, the local councils were obliged to finance their own contingents. Each soldier was obliged to carry four to six days' supply of food with him to the muster. This system provided for great military independence, and only in exceptional cases were mercenaries recruited to supplement cantonal forces.

Each roll call, or *Mannschaftsrodel*, usually set out in detail how many men were to be conscripted from the city in question and how many from the outlying communities; which weapons they were to carry; and who was to be placed in command of the particular contingent. Each guild, for example, was obliged to select those men who were to serve in the Auszug.

The *Banner*—the cantonal or supreme Confederate standard (and by derivation, the name of the major organizational unit)—was the rallying point for each contingent or army, and was carried at the side of the *oberster Feldhauptmann* or commander. This officer was usually appointed by the cantonal council or by a council of war consisting of the various officers of each contingent and the men. Each Feldhauptmann kept his own staff of a scribe, a field surgeon, a cook, an executioner and a *Weibel*, whose task it was to enforce discipline. Beneath the Feldhauptmann the most important rank was that of the *Venner* or ensign, who bore the standard during battle and otherwise kept it at home. On the march the standard was usually carried by a bearer who was designated a section of bodyguards under the command of a *Bannerhauptmann*. The Zürich *Bannerwache* consisted of twenty-six bodyguards, two men from the Constafel contingent and two chosen from each of the twelve remaining guilds of the city.

Around the cantonal banner would be grouped the various *Fähnlein* of the particular guilds or communities listed in the roll call. In the case of a confederate as opposed to a cantonal formation the represented cantonal banners would be grouped around the Swiss standard. The Fähnlein—which literally means 'a small flag'—was the tactical sub unit and usually numbered between 50 and 150 men. It was not uncommon for there to be *Schützenfähnlein* consisting exclusively of handgunners and crossbowmen and placed under the command of a *Schützenhauptmann*. Each Fähnlein had a special guard of two men attached to it. A further tactical unit was

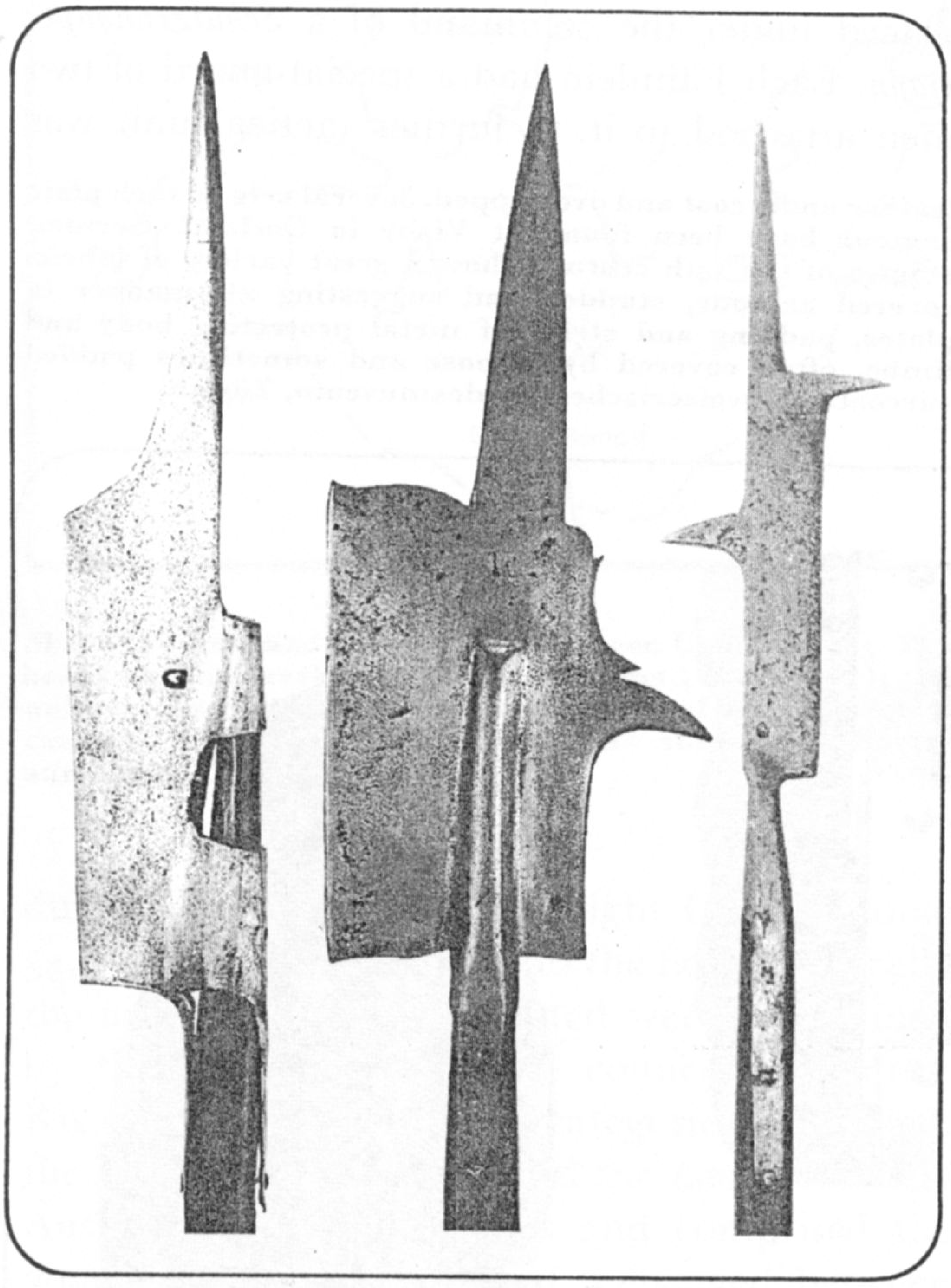
A helm *(Kübelhelm)* and coat of plates *(Spangenharnisch)* as worn by men-at-arms in the second half of the 14th century. The helm consists of five riveted plates, and was worn over a bascinet and mail aventail. Later it was relegated to the jousting field. The 'coat of plates' was in widespread use during this period, and was often worn under a surcoat or covered by fabric. The plates were riveted to a leather undercoat and overlapped. Several sets of such plate armour have been found at Visby in Gotland. German effigies of the 14th century show a great variety of fabric-covered armour, studded and suggesting all manner of plates, padding and strips of metal protecting body and limbs, often covered by a loose and sometimes padded surcoat. (Schweizerisches Landesmuseum, Zürich)



the *Rotte* or section. This usually consisted of ten men.

Each cantonal banner had its own complement of musicians—a fifer, drummer and bagpiper. The musicians were usually in the pay of the cantonal commander. Some cantons were distinguished by their great war horns or *Harsthörner* (such as Lucerne, Uri and Unterwalden).

At the muster, each canton and contingent would swear an oath on the Banner and the articles of war were read out to the men. The basic military ordinance of the Swiss was laid down in the Covenant of Sempach 1393. Apart from establishing military co-ordination and interdependence between the cantons (each canton was to see to the training of its men, for example) it set out a detailed code to ensure discipline both within and between the contingents, and to control the rank and file in plunder and booty-sharing.



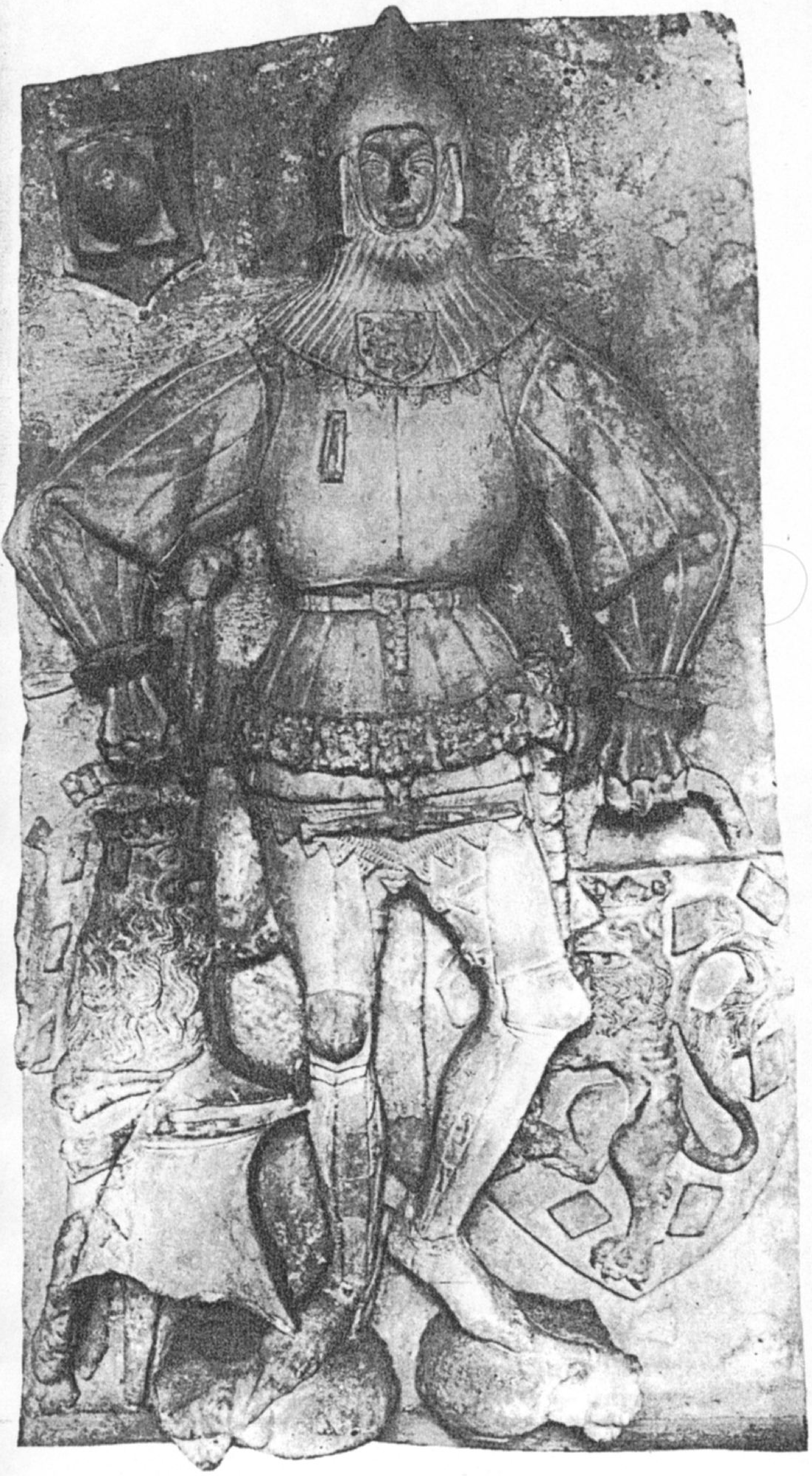
The oldest surviving Swiss halberd dates from Morgarten, but it was in fact the battle of Sempach which transformed infantry tactics. The early form of the halberd consisted of a 1.8m-long ashen staff with a type of elongated hatchet held onto the staff by two eyes. In some cases a slightly curved hooked bill was held by a separate eye. This proved useful both for parrying a blow and unseating a mounted man-at-arms. The primitive or Sempach halberd, as it is known, evolved from this, and is distinguished by two iron protrusions added at front and back to the socket and riveted to the shaft to strengthen the weapon and increase its effect. The early models are characterized by an almost axe-like appearance and short point. The round shape of the shaft was soon replaced by a polygonal cross-section for a better grip. The later 'Bernese' type of halberd, which evolved during the 15th century, is characterized by a much more compact head with a single hook forged into the back of the blade, as above. A halberd weighed between 2.5kg and 3.0kg. (Château de Grandson)

The election of the officers was also carried out at the muster. Usually supreme command was given to the officer in command of the canton which had called the various contingents together. The officers of each subcontingent were usually elected by the respective community council of elders. In some cases the cantons preferred to act independently with the result that in some engagements—e.g. Morat—there was no supreme commander. The question of command was thus handled in a democratic manner, with councils of war consisting of the officers of each contingent assembling before each battle to co-ordinate tactics. It is for this reason that the period in question produced no great Swiss military commander; only at Laupen could the Confederates be said to have had an overall leader in Rudolph von Erlach.

After these preliminaries and the election of the officers, the army would be drawn up in the usual three units of the *Vorhut*, *Gewalthut* and *Nachhut*. This procedure must have been very orderly and precise. A special officer known as the *Ordnungsmacher* was appointed to dress the ranks. The muster-rolls not only listed the names of the men in each contingent; they also set down which weapons they were to bring, and the position each subcontingent was to take in relation to the cantonal or confederate banner.

The detailed manner in which this was carried out can be illustrated in the following example from roll list number 1748, setting out how many crossbowmen the Constafel guild was obliged to send against Schwyz during the Old Zürich Wars in 1442–43:

Constafel Guild
Johannes Swend: Hauptmann
Jacob Benn } shall guard the
Pentelly Hagnower } Constafel standard



Tombstone of Walter von Hohenklingen, killed at the battle of Sempach, 1386. This is a fine example of a typical late 14th century knight. Note the padded aventail worn over the mail, the dagger suspended horizontally across the groin, and the buckles on the inside leg fastening the leg armour. Note also the lance rest on the right-hand side of the breast plate. (Schweizerisches Landesmuseum, Zürich)

Swegler an Ottenbach—shall take command of the following crossbowmen:

Erhart Thyg
Ulrich Moser
Rudy Baldinger
Hans Sidenfaden
Cunrat am Wasen
Sigmund Graff
Rudy Imbach
Werder
Heine Weibel
Uly Gelter
Hans Zeller
Winamt Zoller

In addition the list instructs Hans Swend as Hauptmann to take three ranks (*Zileten*) and deploy them to the left hand side of the Banner.

Tactics and Campaigns

Swiss infantry tactics underwent a considerable transformation during the wars of independence. Broadly speaking, their development can be divided into two periods: the period from Morgarten (1315) to Arbedo (1422); and from the battle of St Jacob-en-Birs (1444) to the Swabian Wars (1499) and beyond into the Italian Wars of the first quarter of the 16th century.

The early development of Swiss tactics is characterized by the employment of somewhat primitive yet deadly effective ploys, beginning with the classic encounter at Morgarten.

Morgarten 1315

Schwyz was one of the first of the Forest Cantons to assert its independence against the Habsburgs, and precipitated hostilities by plundering a protected monastery at Einsiedeln in 1315. Facing a combined Austrian force of some 9,000 men, including 2,000 mounted knights under Leopold I, Schwyz withdrew behind an intricate system of earthworks and palisades. Leopold, aware of these defensive systems, chose to focus his advance at their weakest point, which was through the pass at Morgarten. Schwyz, completely cut off, could muster only 1,300 men, including some 300 auxiliaries from Uri and a small contingent of approximately 100 men from Unterwalden.

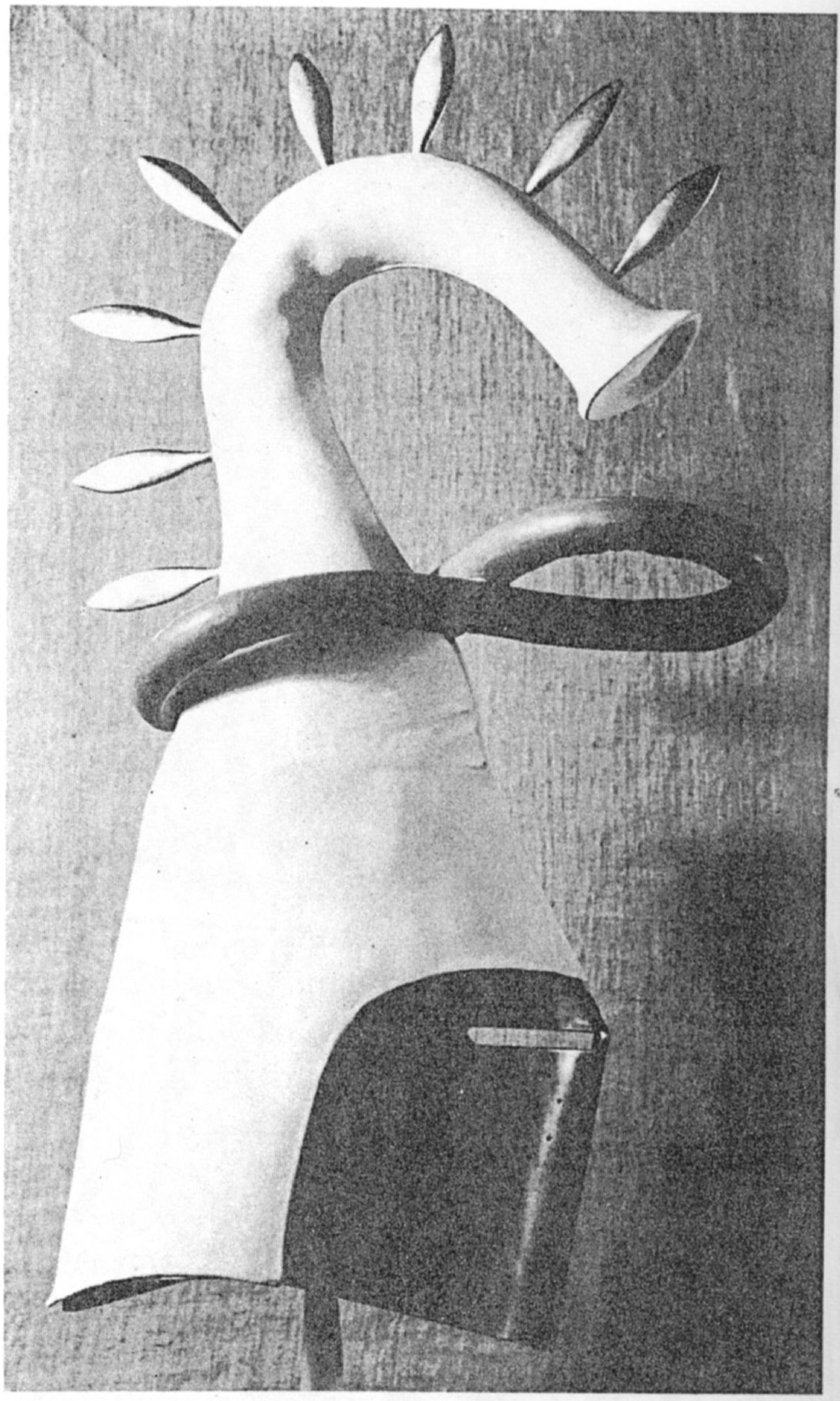
The Austrian army approached the pass in a long column with the knights in the van. Having reached the narrow defile, the Austrian column found the way forward blocked. Forced to proceed sharply to the left and along a narrow track, the column soon encountered a further obstacle at the hamlet of Schafstetten, where a small group of Schwyzer stubbornly attempted to hold back the Austrian van. By halting its advance, the Schwyzer had succeeded in the first stage of their tactical ploy, for the column now started to concertina into an immobile mass. A chosen group of Schwyzer were now sent down the wooded slope from the main force above, with the task of cutting off the Austrian van from the columns of foot by blocking the track with tree-trunks and debris. Almost at once the Swiss commenced their charge down through the woods, showering the confined Austrians with a hail of stones and following up the impetus with their halberds and axes. The result was total panic. The Austrians were driven into the marshes to their rear and cut down. Some 2,000 Austrians, mainly knights, met their death. The losses of the Schwyzer were minimal.

Morgarten demonstrated above anything else the lack of respect which the Forest Cantons had for the mounted knight, and for the notion that battles had to be fought out as a form of tournament *en masse*. Surprise, coupled with the skilful use of the terrain, were the main tactical factors in the success of the Forest Cantons. However, this could not always be guaranteed, as at Laupen for example.

Laupen 1339

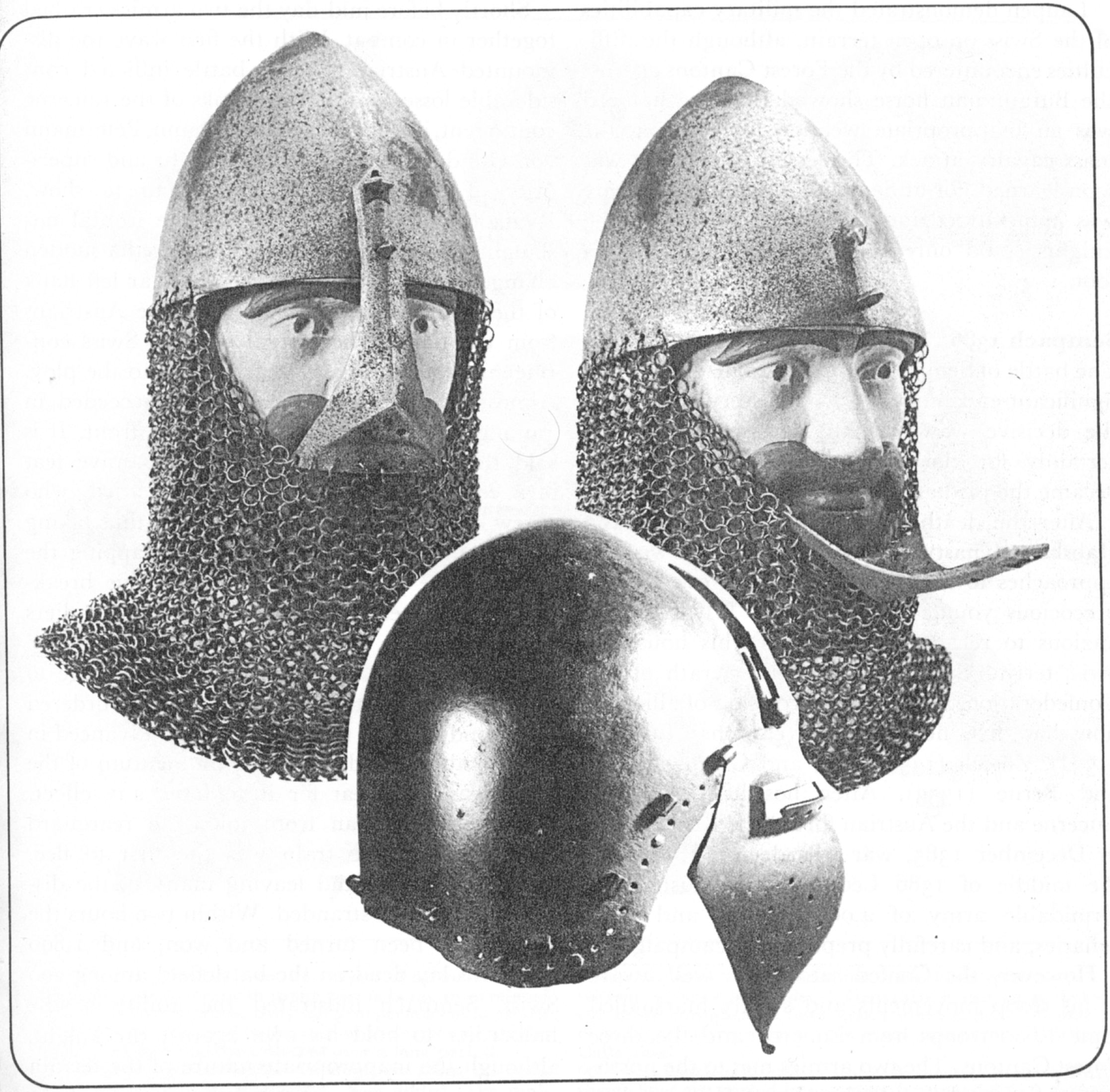
The battle of Laupen was the outcome of the war between Berne and a feudal alliance of Fribourg, Burgundy and a number of related duchies. Berne, anxious to establish a bulwark between herself and her aggressors opened hostilities by occupying the fortress and city of Laupen. In 1339, a 12,000-strong army of Fribourg and Burgundian contingents laid siege to the city. Berne, pressed to despatch a relief force, called for the assistance of the Forest Cantons, who sent 450 men. A further 450 men joined from Simmental and Haslital, and even Solothurn, which also stood under threat, despatched eighteen mounted knights. These contingents brought the Bernese force up to 6,500; for the first time the Swiss were to be recognized by the white cross which each man had sewn to his clothing.

At Bramberg, a village to the east of Laupen, the Swiss drew up into two columns, with the Forest Cantons facing the mounted Burgundian knights on the Swiss left flank, and the Bernese contingent opposing the allied Fribourg foot. When battle commenced, the Forest Cantons soon found themselves hard-pressed by the Burgundian knights while the Bernese faced the oncoming Fribourg foot. Shortly before these two columns clashed Berne ordered her '*enfants perdus*' to advance to within throwing distance and shower the enemy column with stones. This tactical ploy was intended to shake the formation of the enemy, who would then feel the weight of the Bernese halberdiers and swordsmen. However, the sight of the retreating stonethrowers filtering through the front lines unsettled the rear of the Bernese column, and several hundred men fled into the nearby forest as the two columns clashed together.



This photograph shows a reconstruction helmet and crest of a Basle knight — Ritter von Madeln. (Schweizerisches Landesmuseum, Zürich)

The front ranks seem to have been but little disturbed by this defection, for soon a wedge of halberdiers had formed itself and was penetrating



deep into the centre of the Fribourg column where the banners were grouped. In the vicious hand-to-hand combat which followed the cohesion and momentum of the Fribourgers soon collapsed. The Bernese did not press home the advantage of the ensuing rout, but instead regrouped to the left in aid of their hard-pressed comrades of the Forest Cantons. The surrounding Burgundian knights soon found themselves surrounded, and dispersed under the weight of the Bernese flank attack they were easily picked off by the Swiss foot.

(Top) Bascinet with nasal (*c.*1350), as shown on numerous German effigies. Such helmets offered good vision but debatable protection. The mail aventail would have been heavily padded. (Below) Bascinet sporting a *Klappvisier* or moveable visor (*c.*1370). This represents the stage between the nasal type shown above and the side-pivoting visor which was to come. During the last quarter of the 14th century there was an increasing tendency for the apex of the bascinet to be moved further back, until by the beginning of the 15th century the profile of the back was often almost a vertical line. Note the holes on the lower edge of the helmets to suspend the mail neck-piece. (Schweizerisches Landesmuseum, Zürich, and Musée Valaria Sitten/Sion)

Laupen demonstrated the military capabilities of the Swiss on open terrain, although the difficulties encountered by the Forest Cantons against the Burgundian horse showed that the halberd was an inappropriate weapon for resisting the mass cavalry attack. The lesson of Laupen was soon learned, for at Sempach the opposing army was manoeuvred into such a situation that the knights could only be employed effectively on foot.

Sempach 1386

The battle of Sempach represents one of the most significant encounters in Swiss history—if not for the decisive way in which it was won, then certainly for the way in which the halberd became the primary Swiss weapon.

After the death of the Emperor Charles, the Habsburg dynasty was divided up and the western approaches to Austria were handed over to the precocious young Duke Leopold III. Leopold, anxious to reassert the claims of his house on Swiss territory, soon incurred the wrath of the Confederation, which by a succession of alliances now had five new member cantons: Lucerne (1332), Zürich (1351), Zug and Glarus (1352), and Berne (1353). After hostilities between Lucerne and the Austrian fortress at Rothenburg in December 1385, war was declared; and by the middle of 1386 Leopold had mustered a formidable army of 4,000 knights and mercenaries, and carefully prepared his campaign.

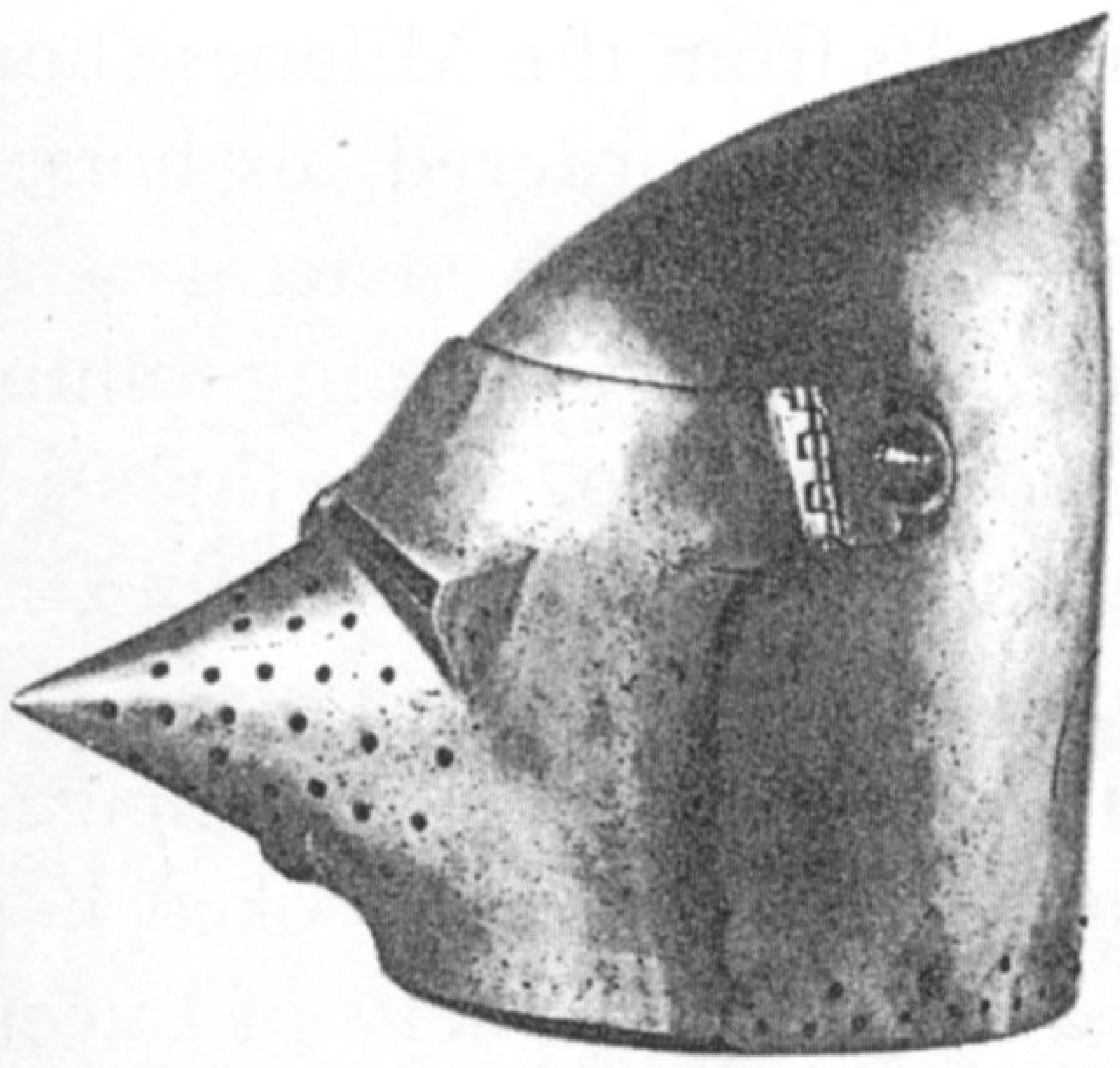
However, the Confederates were well aware of his troop movements and swiftly marshalled some 1,600 troops from Lucerne and the three Forest Cantons. The two armies met to the northeast of Sempach by the hamlet of Hildesrieden. Here the two main Austrian columns were confronted by the Swiss van speedily advancing to gain their needed advantage of terrain. As it was, neither army had time to deploy effectively.

The Swiss, however, had achieved their aim, for Leopold had ordered his young knights in his 'vaward battle' to dismount—not only on account of the terrain, but also because the Duke wished to prove the effectiveness of the dismounted lance against the halberd. The Swiss for their part hastily formed a wedge with the wider right wing forming the point.

Shortly before mid-day the two armies crashed together in combat. With the first wave the dismounted Austrian vaward battle inflicted considerable losses in the front ranks of the Lucerne contingent, including the Hauptmann, Petermann von Gundoldingen. Soon the weight and superiority of the Austrian 'pike' began to show. Realizing the ineffectiveness of the frontal onslaught, the Swiss commanders ordered a sudden change in formation in which the rear left flank of the wedge widened to counter the Austrians from the flank. The arrival of fresh Swiss contingents from Uri gave new impetus to the ploy. Almost at once the Confederates succeeded in gaining a lodgement in the Austrian front. It is said that this was achieved by the brave feat of a certain soldier known as Winkelried, who threw his body at the Austrian 'pike', thus taking out a number of their points and snapping the shafts in the process. Once this decisive breakthrough had been achieved the Swiss halberdiers poured through, swinging their weapons above their heads and causing tremendous damage to the Austrians. On seeing this, Leopold ordered his second column to counter, but it advanced in considerable disorder and the momentum of the Swiss was too great for it to have any effect. Seeing the Austrian front fold, the rearguard panicked, and the train was the first to flee, taking the horses and leaving many of the dismounted knights stranded. Within two hours the battle had been turned and won, and 1,800 Austrians lay dead on the battlefield among 200 Swiss. Sempach illustrated the ability of the halberdier to hold his own against the knight, although the inappropriate nature of the terrain made it necessary for the Austrian horse to fight the battle on foot.

Näfels (1388) and the Appenzell Wars (1403–05)

Näfels, often regarded as the concluding chapter in the Sempach Wars, ranks along with the battles of Voegelinsegg (1403) and Stoss (1405) as an example of the importance of the defensive system of earthworks and palisades (so-called *Letzinen*) both strategically and tactically. At Näfels, the defences were easily breached by the Austrians; but the shrewd withdrawal of the



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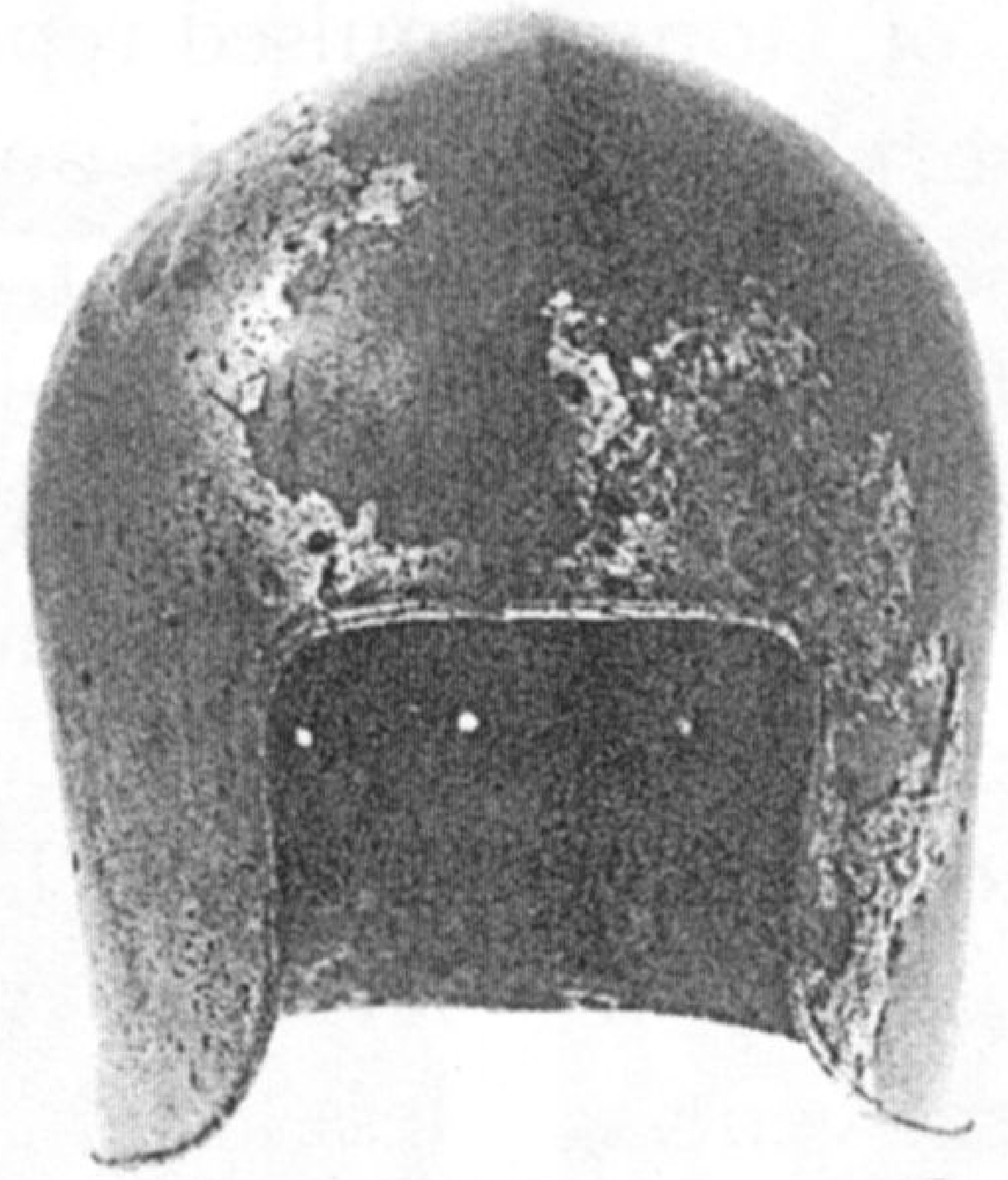

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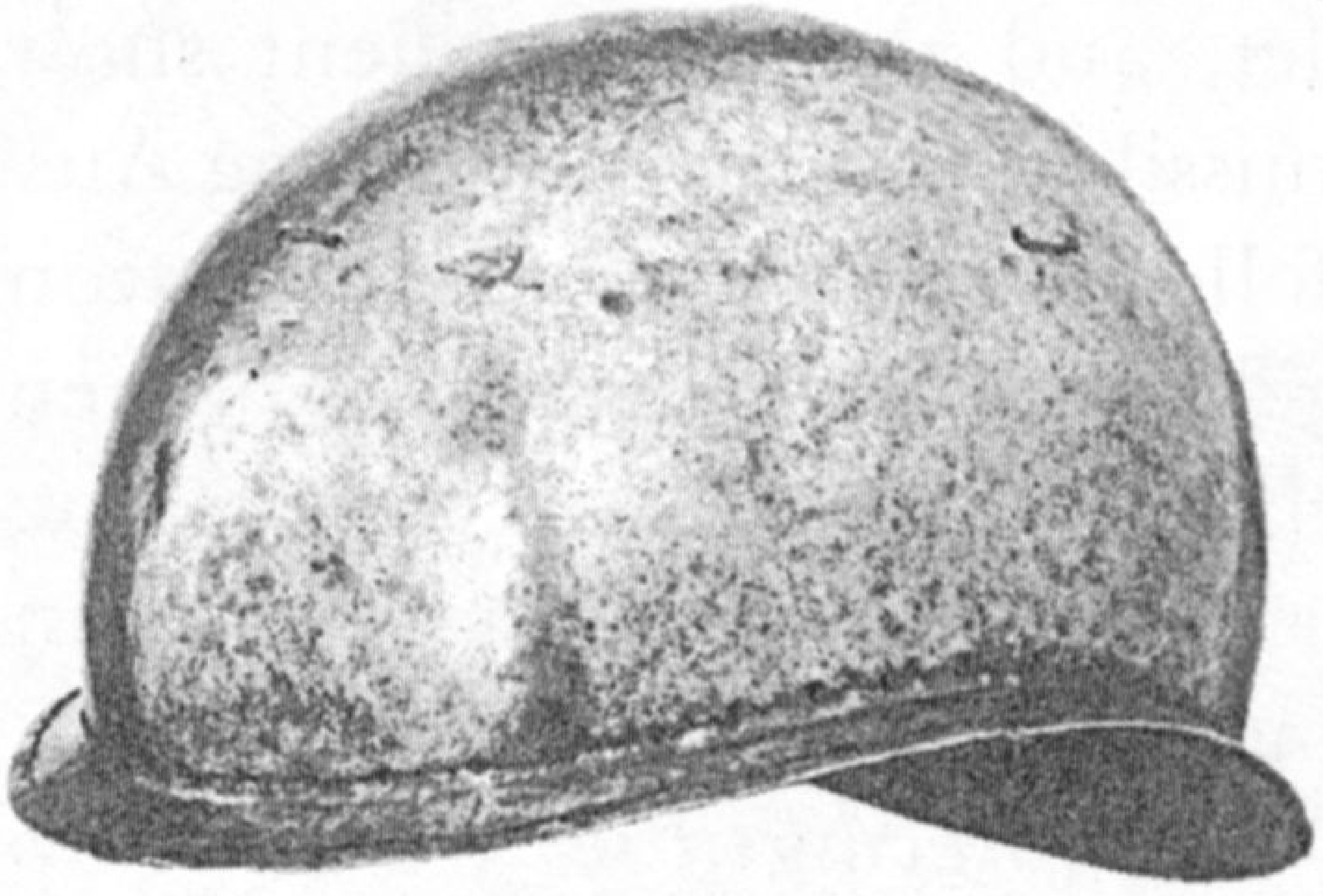

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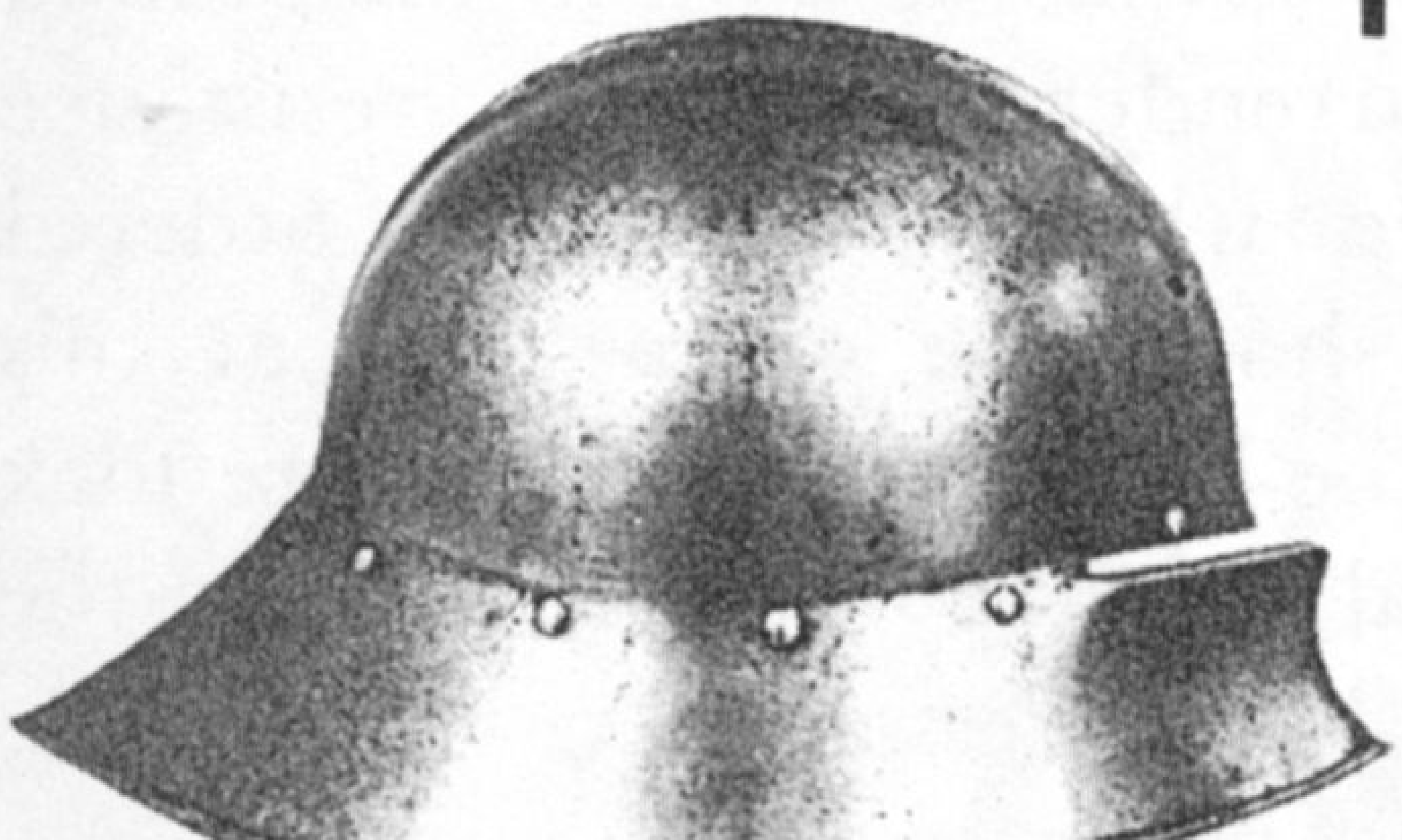

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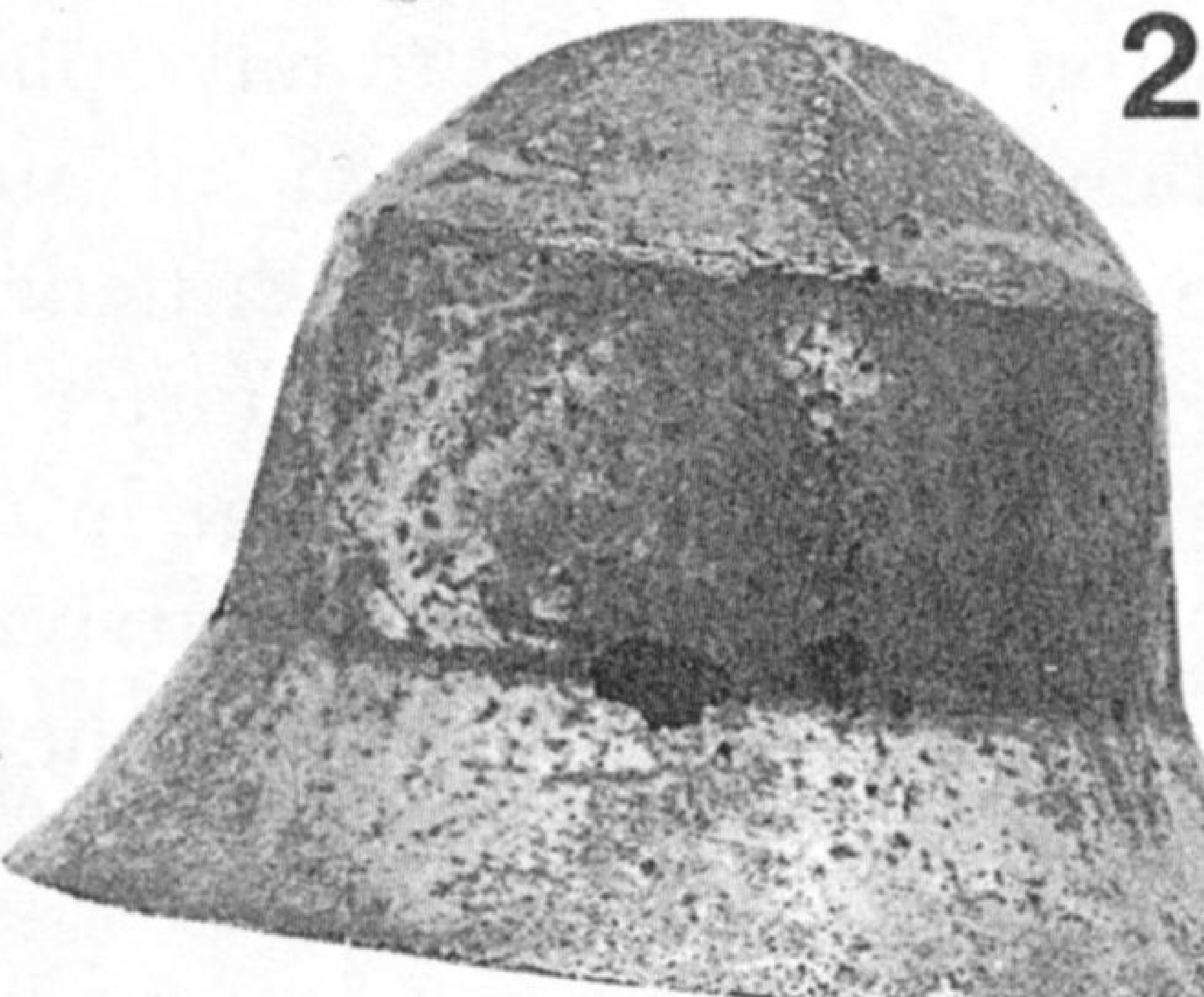

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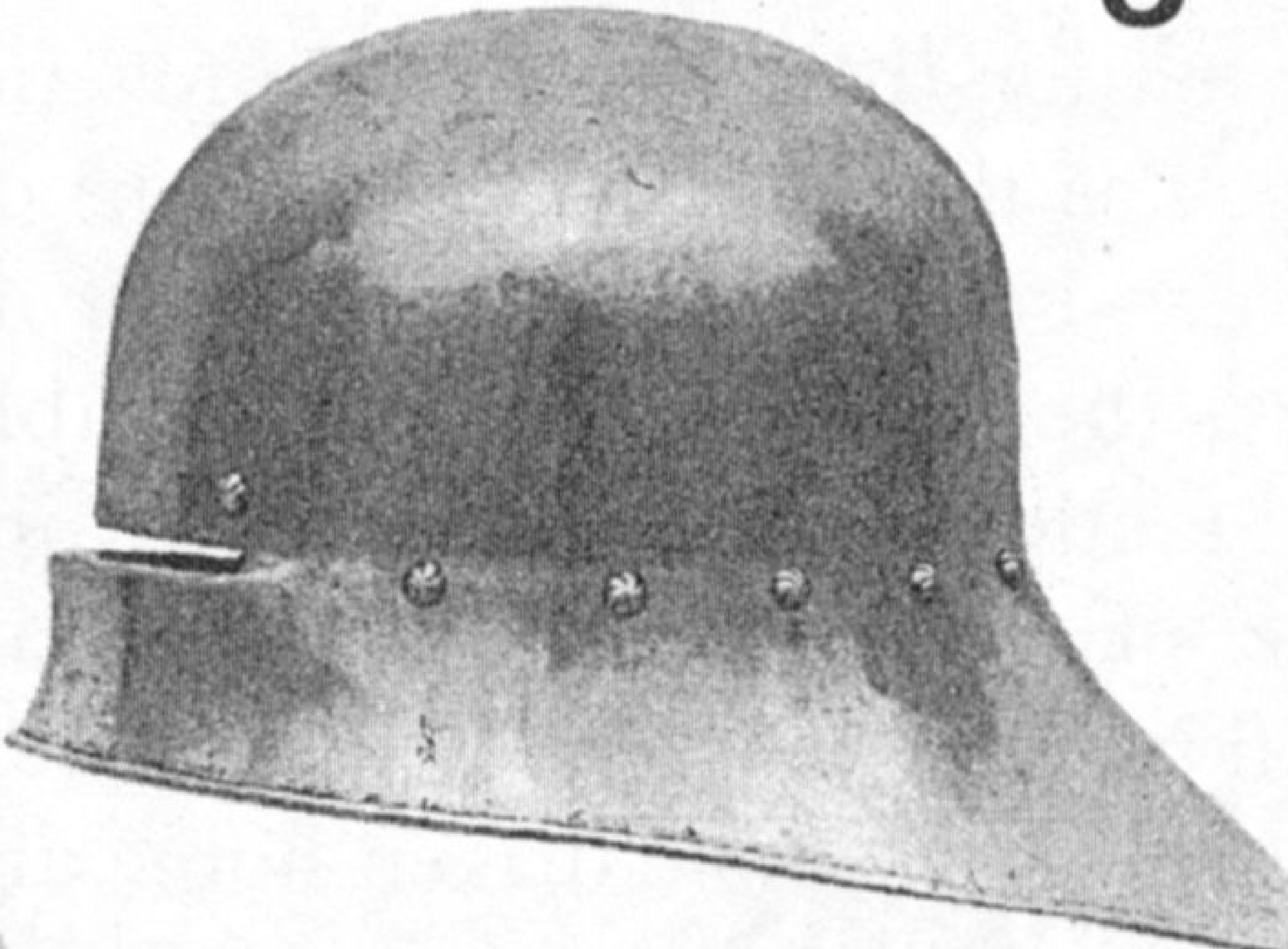

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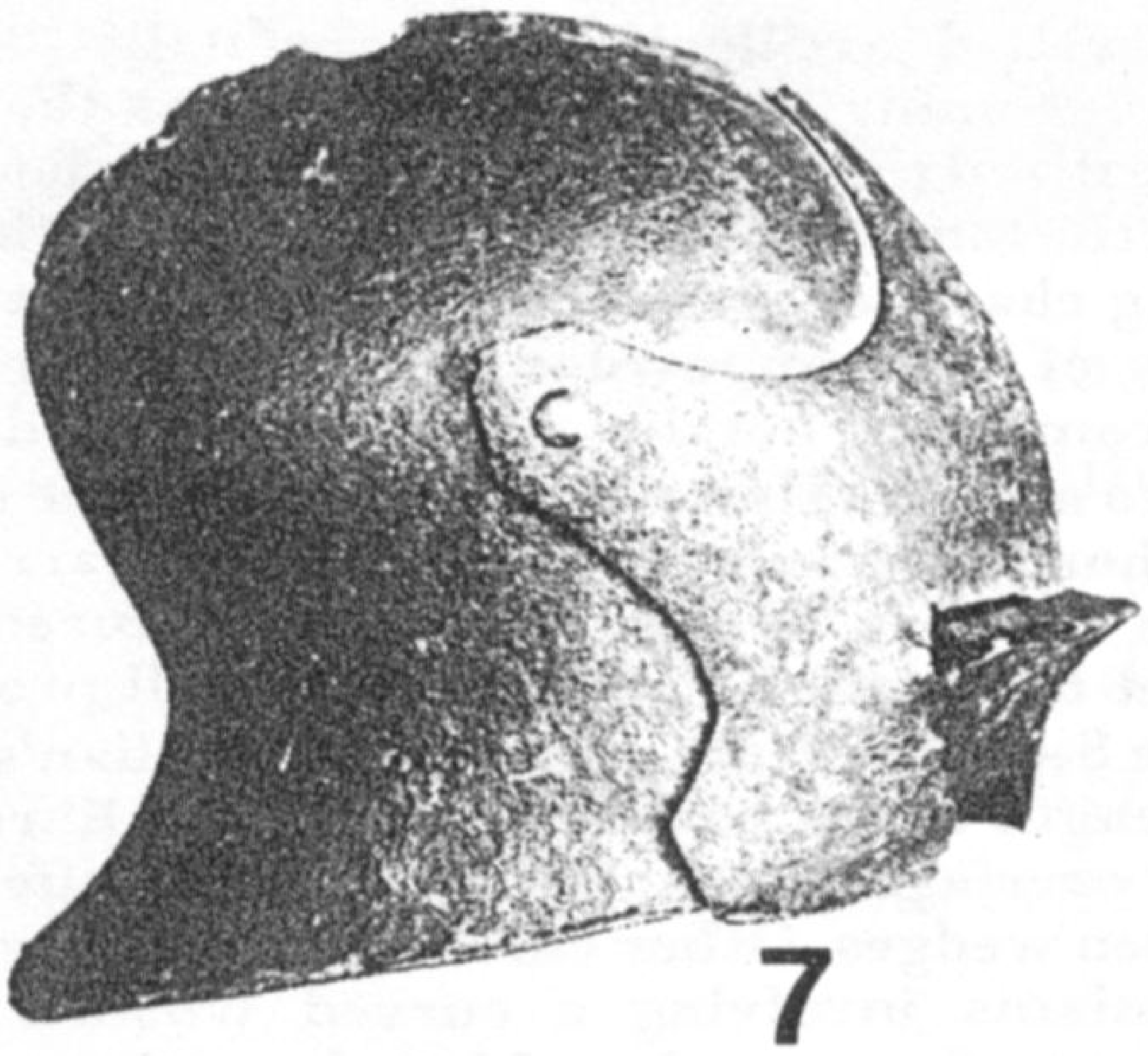

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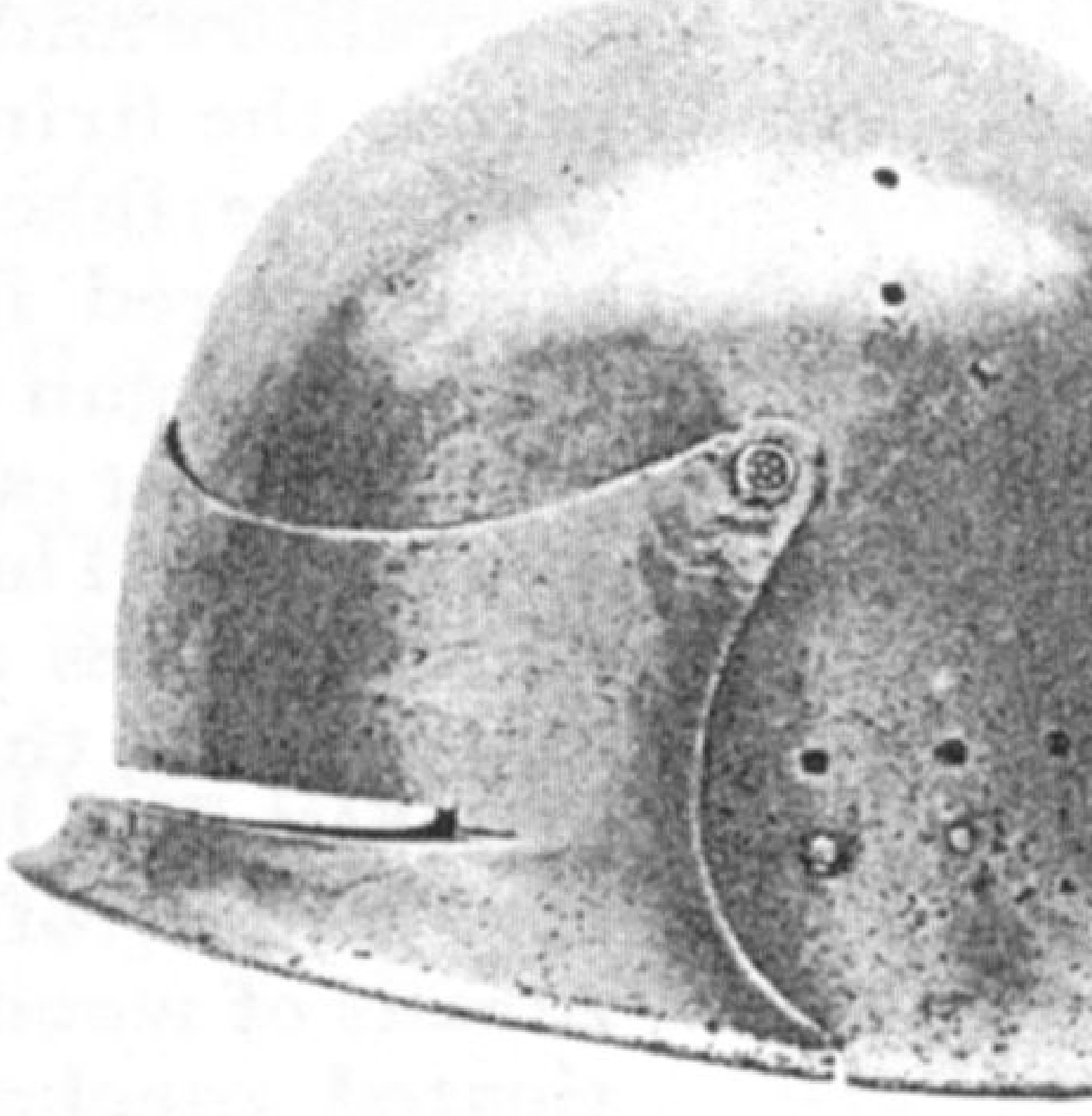

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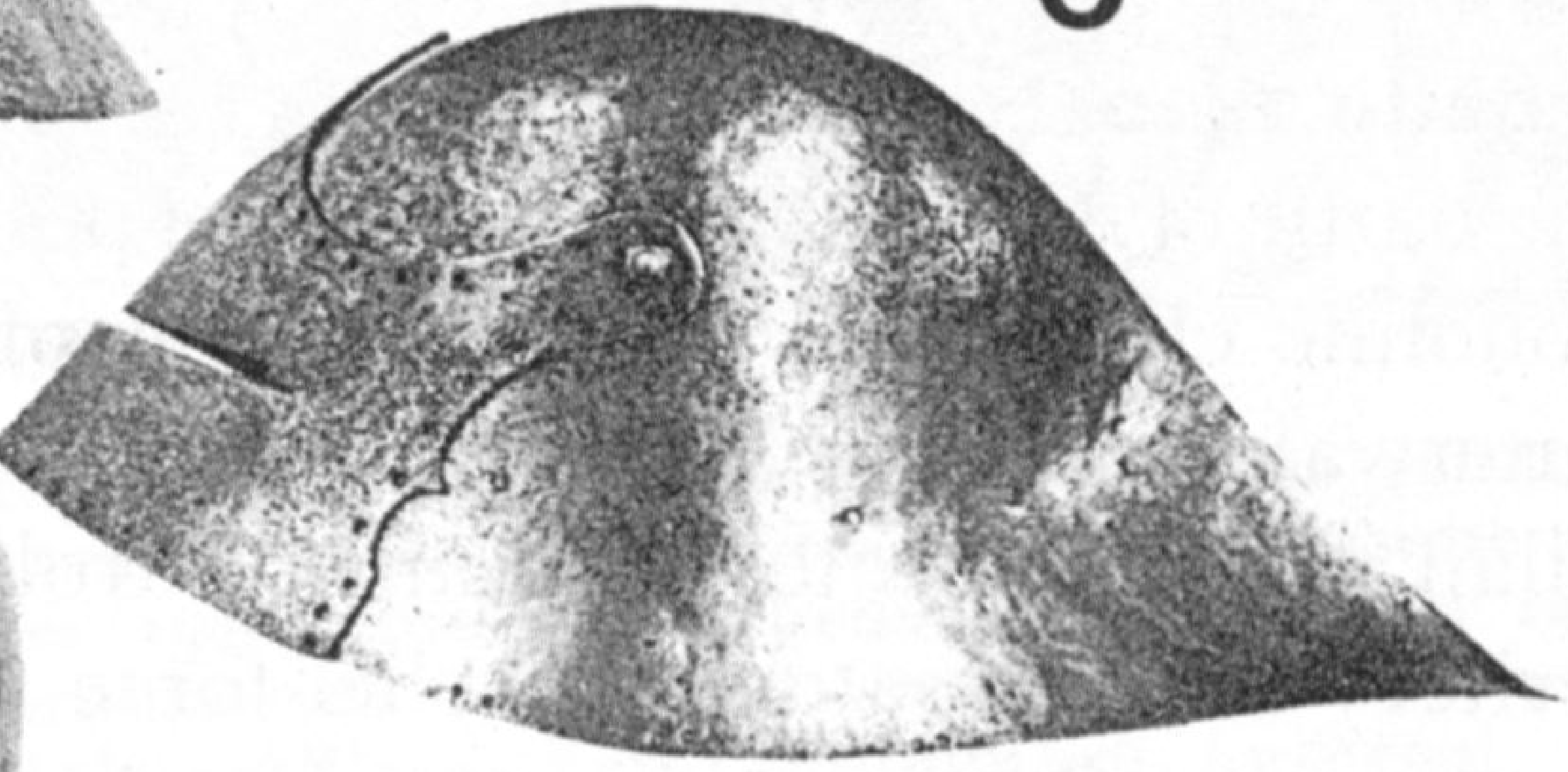

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It is difficult to generalize on the subject of helmets during the period in question, with many pieces being interrelated and in use for a long time. Only the prosperous could afford fashionable armour, and in the case of the rank and file the body protection would be collected over a long period.

(1) Bascinet, *c.*1390—a further development from the open bascinet to which the *Klappvisor* was added. The mail aventail is missing (Schweizerisches Landesmuseum, Zürich)

(2) Barbute, 15th century, of Milanese origin. This helmet fits closely to the head and is similar to the Greek casque. Some have a large opening in the front leaving most of the face uncovered; others have fixed nasals, while others again display a T-shaped opening permitting greater vision, yet retaining protection for the face. (Daniel Boesch, Château de Grandson)

(3) Cervelière: Schilling shows many of the common Swiss soldiers wearing round metal skull-caps, covered with turbans, decorated with feathers, painted, covered with fabric or left plain. Occasionally they are painted with a Swiss cross. Some have no brim, and two large disc-shaped plates suspended from short leather straps for ear protection. (Château de Grandson)

(4) Sallet—German, forged from one piece, *c.* 1450–60. The Swiss chronicles during the above period show a very wide range of shapes from barbutes to kettlehats and sallets, which generally become more distinctive towards the end of the 15th century, when they begin to acquire longer 'tails'. Many different shapes seem to have been worn with or without a *bevor* (chin-piece). Generally it can be said that the more complicated (and hence more expensive) pieces of headgear were worn by the more prosperous. (Wallace Collection)

(5) Swiss kettlehat, 15th century. A most popular helmet throughout the period in question, it appeared in a variety of shapes, some being very deep and having eye slits cut in the brim. This particular helmet was found in Lake Morat. (Metropolitan Museum of Art, New York)

(6) German sallet, *c.*1490. This shape, with or without visor, and often decorated with scarves or feathers, was very popular at the end of the century. (Metropolitan Museum of Art, New York)

(7) Sallet—probably Milanese, *c.*1450–70. (Château de Grandson)

(8) Sallet, French or Burgundian, before 1480: note the holes for the studs to hold the lining. Generally *all* helmets were lined and padded, often with a drawstring inside to tighten the lining, and held firmly in place with a buckled chin-strap. (Metropolitan Museum of Art, New York)

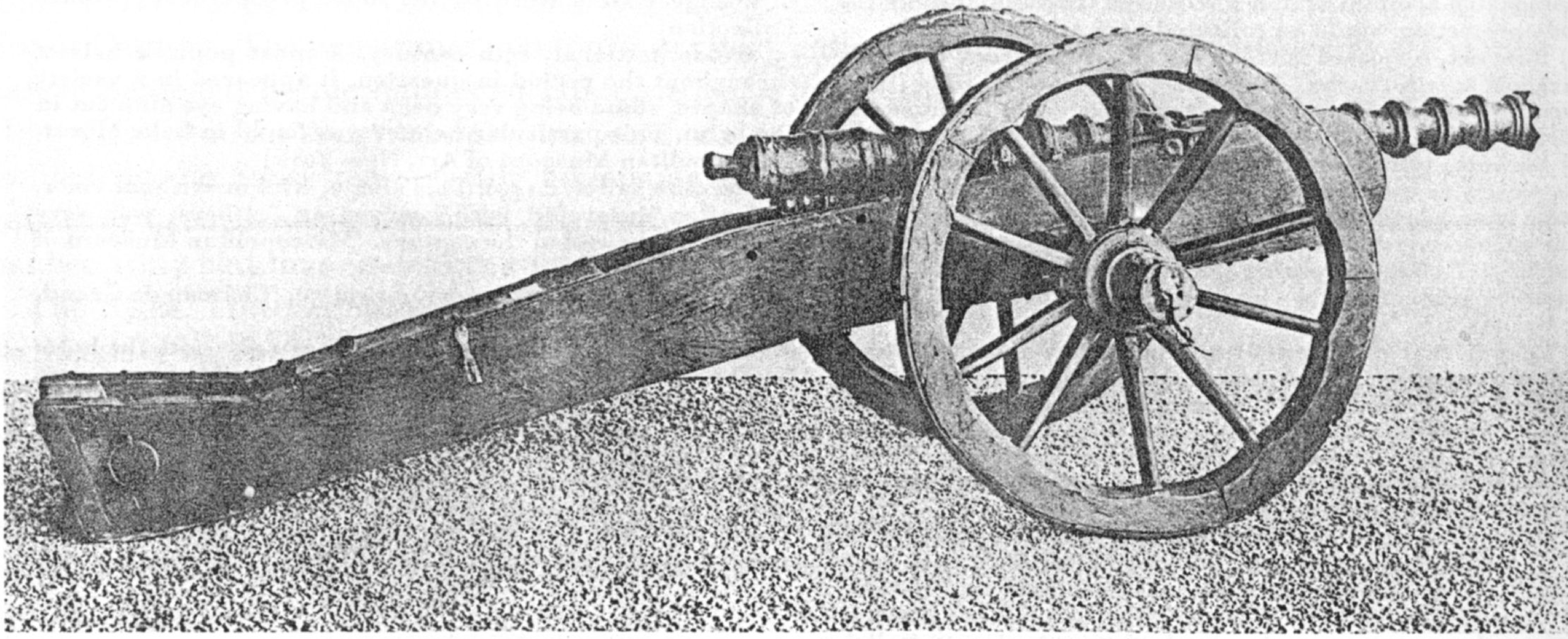
(9) German sallet, so-called 'Black Sallet'—the surface usually being left rough from the hammer, hence the name. These were worn chiefly by men-at-arms and were often painted, or covered with fabric. (Wallace Collection)

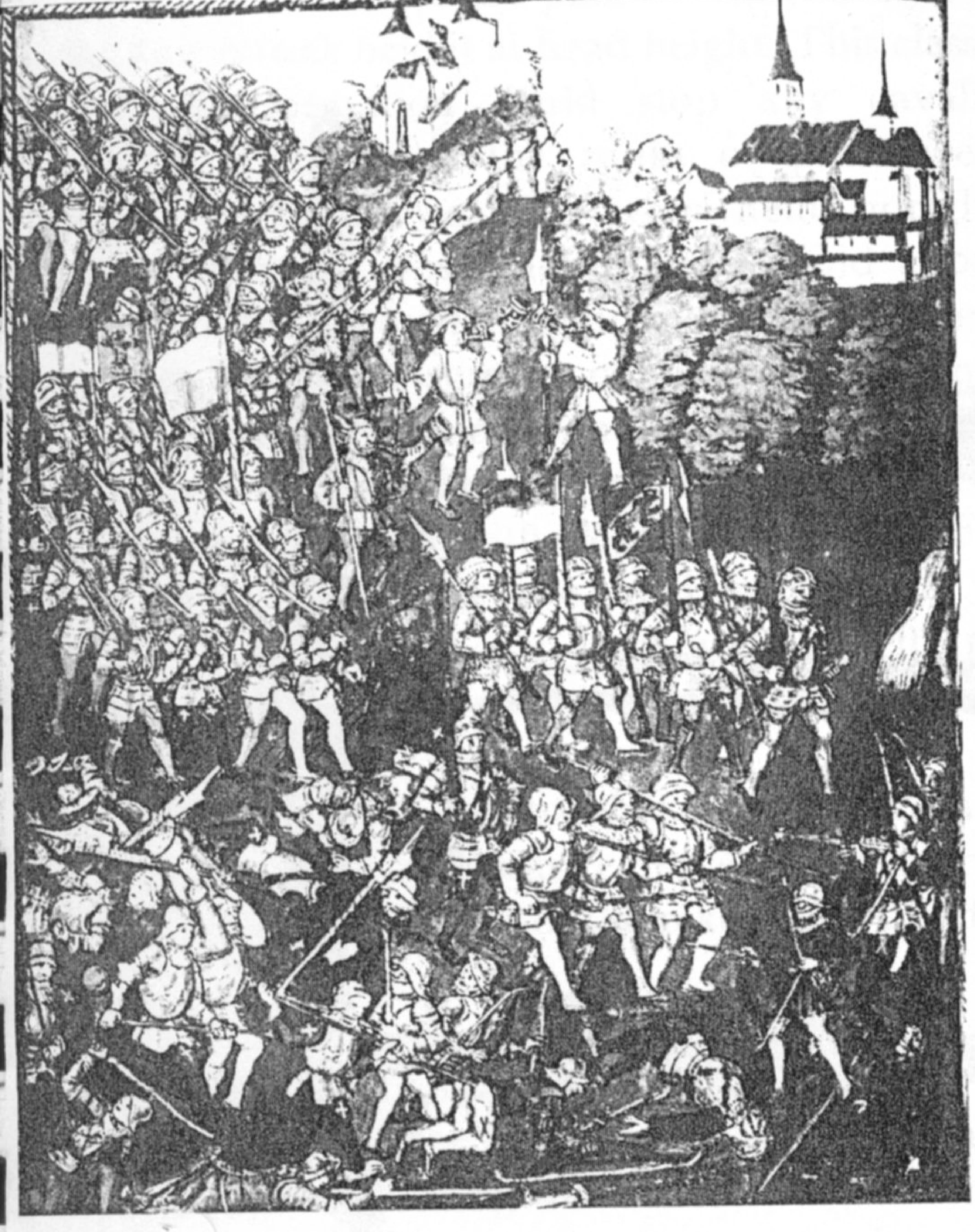
Glarus contingent to a hill overlooking the hamlet, and their subsequent shower of stones and missiles on to the plundering Austrians below, was followed by a charge which won the day. At Voegelinsegg and Stoss the Letzinen were deliberately left undefended to lure the van of the Austrian and St Gallen armies into the area beyond, before closing the breach behind and then slaughtering the troops trapped in the enclosure. Voegelinsegg and Stoss closely resemble Morgarten for their simplicity and effectiveness. However, as the political aspirations of the cantons grew beyond the confines of their own territory, the Swiss were no longer able to draw on the tactical advantages of terrain and the network of palisades to support their military undertakings. The restricted nature of Swiss tactics was finally to be driven home at Arbedo.

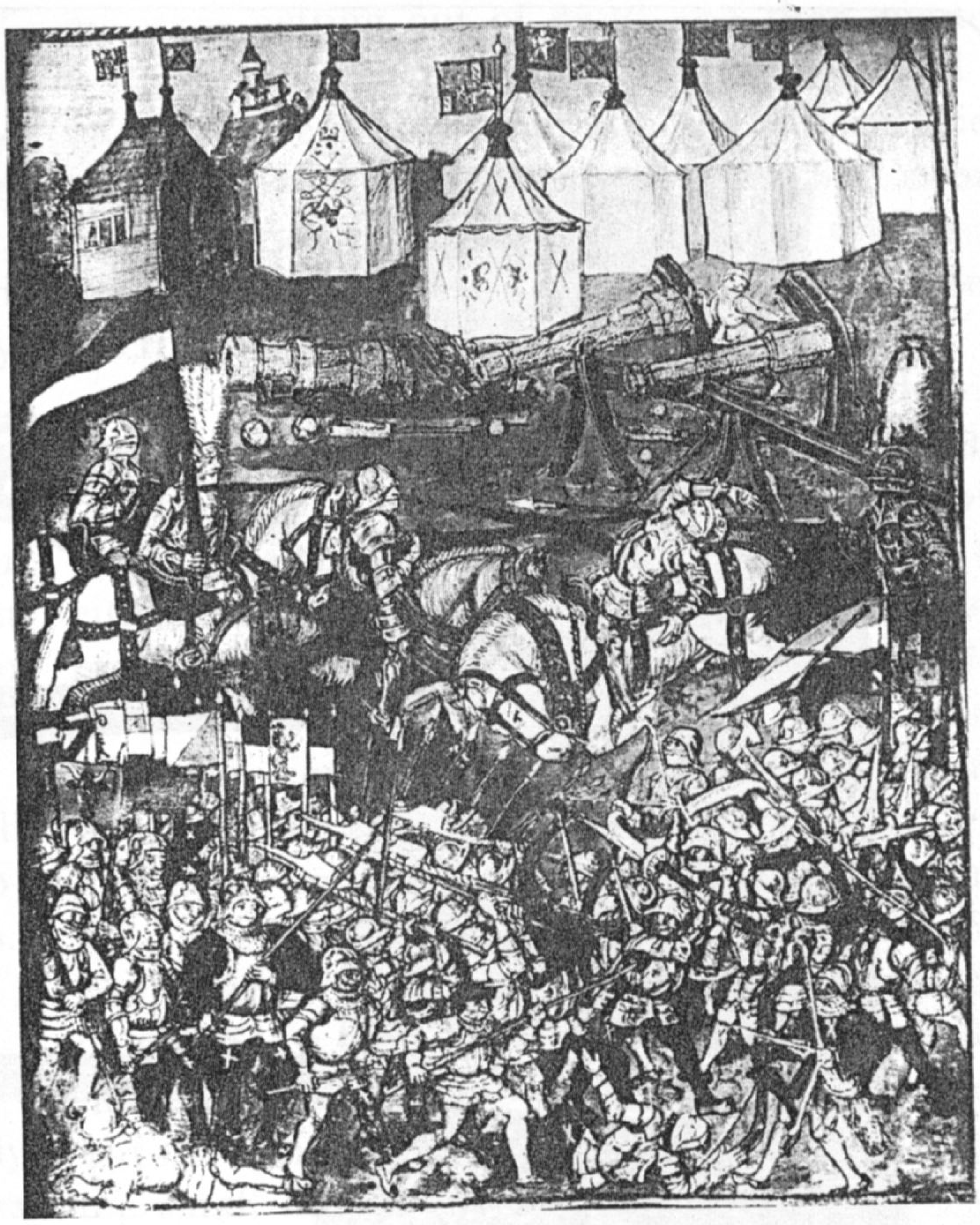
Arbedo 1422

The battle of Arbedo was the result of political and economic claims laid by the cantons of Uri and Unterwalden on the Milanese city of Bellinzona. Milan was anxious to maintain control over this territory and despatched a relief force under the Condottiere Carmagnola. On hearing news of these developments, the Swiss hurriedly despatched an army of 2,500 men over the Gotthard to Bellinzona, where after an unsuccessful assault they pitched camp to the north of the city. On 30 June Carmagnola mounted a surprise attack on the Swiss encampment. The Confederates soon rallied into a squared formation and repulsed repeated assaults from the Milanese horse. At this point, Carmagnola ordered his horse to dismount and join the foot in a general assault on the Swiss square. The overwhelming numbers of the Milanese (some 16,000, including 5,000 horse) made a Swiss withdrawal inevitable, and they beat a difficult retreat along a steep slope to their left in the direction of the village of Arbedo. At one stage the situation looked hopeless for the Swiss, and the Schultheiss of Lucerne is said to have planted his halberd in the ground as a sign of surrender. However, resistance naturally stiffened when Carmagnola ordered that no quarter should be given; and at this decisive stage in the battle the Swiss square took heart at the arrival of some 600 foragers from the north, which the hard-pressed men of Lucerne,

The longer-barrelled artillery piece gradually began to appear by the beginning of the 15th century as the master artillerymen realized that accuracy was greater the smaller the calibre and the longer the barrel. In the case of the larger pieces the firing chamber was narrowed to concentrate the explosive force of the gunpowder. Originally the barrels were forged from iron, but by *c.*1440 copper and bronze barrels began to appear. These were fastened to the carriage by rings at short intervals, to prevent the barrel from exploding. The culverin shown here was captured by the Confederates at the battle of Murten and in all probability was used in the Swabian Wars against Maximilian's Landsknechts. The length of the barrel was 2.17m, calibre 80mm and length of carriage 3.75m. Elevation was effected by means of wooden wedges. Other culverins had more sophisticated mechanisms involving a curved wooden aiming device at the rear of a two-piece hinged carriage, the top half of which could be positioned by means of an aiming pin inserted through one of the holes in the aiming device. (Courtesy Bodleian Library)







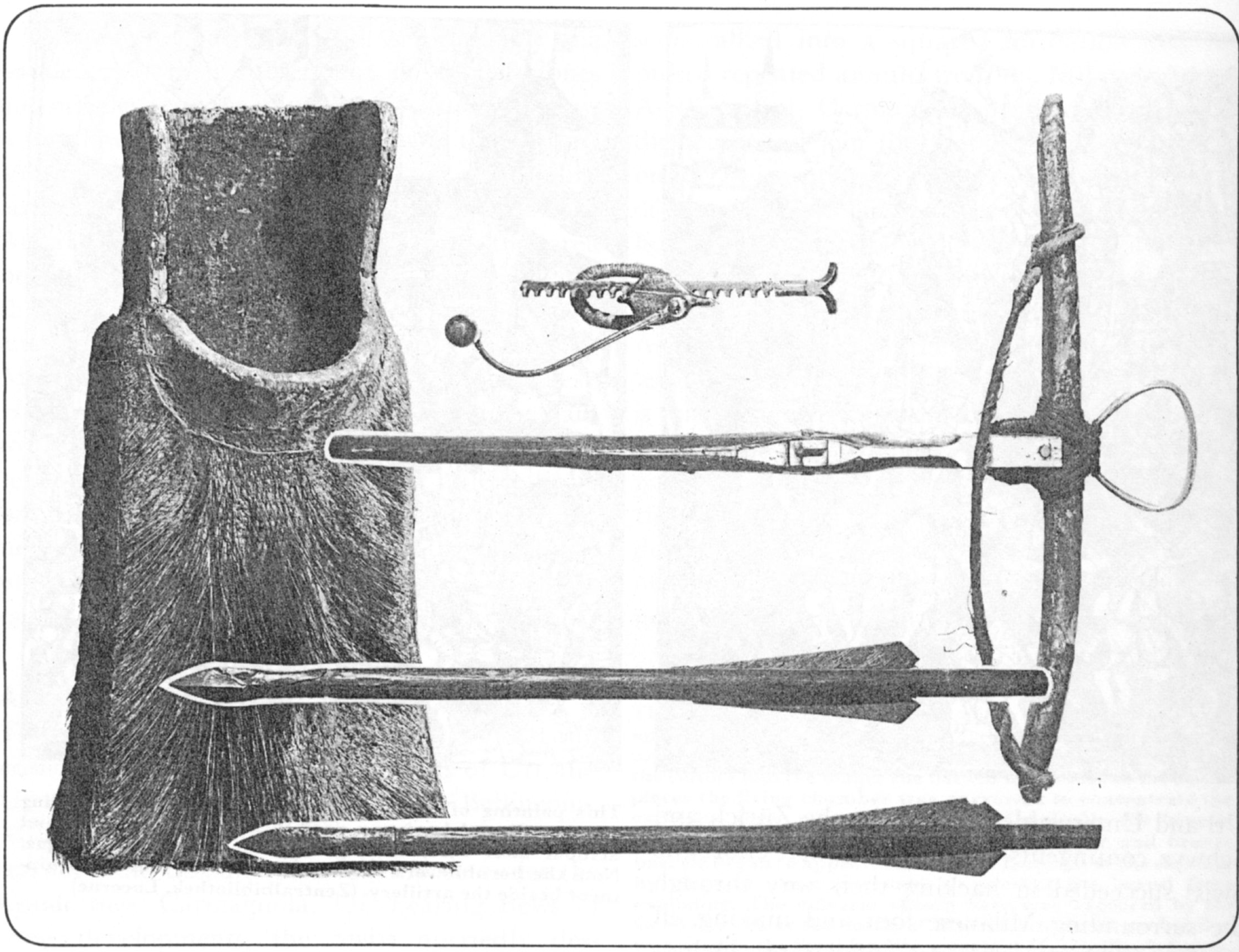
This painting of the battle of Arbedo from the Schilling Lucerne Chronicle gives a good idea of Swiss costume and armour after 1500, although Arbedo was fought in 1422. Note the hornblowers of Uri and Lucerne, and the equipment beside the artillery. (Zentralbibliothek, Lucerne)

Uri and Unterwalden took to be the Zürich and Schwyz contingents. In one last-ditch effort the Swiss succeeded in hacking their way through the surrounding Milanese foot and making off northwards. Five hundred Confederates, including many officers of the Lucerne contingent, lay dead.

Arbedo marks a watershed in Swiss military history, for it forced the Confederation to reconsider the tactical effectiveness of the halberd as the principal staff weapon. More than anything else Arbedo drove home the need to equip the Confederate footsoldier with the pike. Shortly after the battle this need was acknowledged at a Diet held in Lucerne and instructions were given to increase the proportion of pikemen in the cantonal contingents.

This decision was to herald the second great period of Swiss military supremacy, for the introduction of the pike as a principal infantry weapon was to revolutionize military thinking and practice. Due to its length the pike could not be handled individually to any great effect, but had to be employed *en masse*. The proper collective handling of the pike would of necessity entail a considerable amount of training. Furthermore, the introduction of the pike meant the subordination of other weapons, if not in numerical terms then certainly in their mode of employment. Thus while the pike gradually became adopted as the main weapon, the halberd was retained to guard the banners together with the two-handed swordsmen and axe-bearers. However, if a column was halted and the pike locked with the enemy's front, then the halberdiers and swordsmen could always issue from the sides and rear of the column to break the deadlock.

In essence, the Swiss adopted the phalanx system of deploying their pikemen. The first four ranks of pikemen would level their weapons to create an impenetrable wall while the fifth and remaining ranks would hold their weapons upright, ready to fill in any gaps. Because of its length, the pike was held differently by each of the four ranks. The front rank would kneel down with the weapon held low, while the second stooped with the butt held under their right foot.



At the beginning of the 15th century there were two main types of European crossbow: the Western 'arbaleste', and the Central European model. The Central European model, often referred to as the 'cranequin' after the peculiar type of loading mechanism, was the model most widely used by the Swiss. This weapon, weighing about 9lbs, comprised a bow section fabricated from laminated horn and strengthened by animal tissue, finally covered with pigskin and birchwood veneer. This was riveted to an oaken or elm tiller, and reinforced at the joint by a lashing of cord or twine. The reinforced horned bow gave the weapon considerable power, and a bolt could pierce mail and armour at fifty paces.

Various loading devices are known to have been employed. By the mid-15th century crossbows had become heavier and more powerful, being attached to the stock through a mortise instead of being lashed, and with a metal stirrup to take the foot when drawing the bow. This was used in conjunction with the graffle (claw), the cord and pulley, and the windlass. In the case of the first two devices loading was achieved by attaching the claw or hook to the string and the belt, and the drawing effected by the straightening of the body. In the case of the windlass, the bow was drawn by a pair of tackles which were hooked to the rear end of the stock. Some very powerful bows were often loaded by means of a screw which passed through a hole in the rear end of the stock and hooked to the string, a wing on the screw being turned to draw the bow. A popular loading device for the lighter type of weapon was the 'goat's foot', which was a lever arrangement sometimes fitted permanently to the stock. Among the Swiss, the most popular device was a winding mechanism known as the cranequin; the windlass-drawn 'steel' arbalest was preferred by the Burgundians in the 15th century. The cranequin type of crossbow of the 16th century is characterized by the small stirrup. In some cases this disappeared altogether, since the cranequin was a mechanical loading device. The steel crossbow was not adopted by the Swiss until early in the 16th century, although the Burgundians were using them as early as 1426. The crossbow quiver was usually carried on a belt or some form of bandolier.

The typical winding mechanism or cranequin, as shown here, was often fixed permanently to the butt of the crossbow tiller. Inside the metal box was a large cog which was turned by the long handle on the outside. The teeth of this cog engaged those on the side of the metal bar to which the box was attached. This ran down the length of the tiller and clasped the bow string by means of a double hook. Once the bow string had been drawn back over the nut by rotating the handle the crossbow was loaded and the bar could be wound down again and removed. The whole device was usually held in position on the tiller by means of a loop of rope.

The quarrels were thick and short and oval in section. The bolt heads varied in shape from the standard point to an inverted or square-shaped head, sometimes with a jagged surface. Spin and accuracy were achieved through skilful shaping of the two vanes on the bolt, which were usually fashioned from leather, parchment or wood. Note the quiver, which is hollowed wood covered in animal skin. (Quiver: Historisches Museum, Berne; remaining pieces: Château de Grandson)

The third rank held the pike at waist level, and the fourth rank held it at head height. This classic defensive formation could stop any cavalry charge; and where the ranks of pikes were deeper and the weapons were held upright, such a forest of close-packed staffs could afford considerable protection against the fall of enemy arrows. The Swiss were not content with developing defensive formations, and soon mastered the handling of the pike in the advance, when it could be employed with devastating effect. For the advance the pike was held horizontally at chest level, the right arm back and the left arm forward, with the pike-head pointing downwards slightly.

The heroic but catastrophic stand by a small Confederate reconnaissance force at St Jacob-en-Birs was the first test of the pike after Arbedo.

St Jacob-en-Birs 1444

On 28 May 1444 the Hundred Years War finally drew to a close leaving the French king, Charles VII, with a vast army of mercenaries—the Armagnacs—on his hands. Approached by Friedrich III, Charles allied with the Habsburg Emperor and despatched an army of 40,000 to penetrate into Confederate territory through Alsace, securing Basle as a bridgehead. On receiving news of this, Berne immediately sent a force northwards to the fortress of Farnsberg, which served as a base for a reconnaissance expedition of some 1,200 Swiss who were given instructions to advance as far as the River Birs. On 25 August, 1,200 Swiss set out from Farnsberg and by midnight they had reached Liestal, where they awaited the arrival of 300 auxiliary troops from Basle. That night the Armagnacs sent patrols to Liestal to observe the Swiss camp, and found that the Confederates were making no attempt to conceal their presence.

At daybreak the Swiss assembled and continued their advance down the valley in the direction of the Birs. At Pratteln there was a minor skirmish with a section of Armagnac horse, but the French were soon thrown back. After a second skirmish at Muttenz the Confederates found themselves on the banks of the Birs. By now, however, the enthusiasm and fighting spirit of the rank and file were getting out of hand and they wanted to press on. When the commander ordered a retreat there was an uproar; the officers tried to remind the men of the oath they had sworn not to advance beyond the Birs, but, unable to persuade their men, the *Hauptleute* gave orders to cross the river.

After fording the river the Swiss were suddenly faced with the whole Armagnac force. At this point a retreat to Basle could have been possible, but it does not seem to have been considered by either officers or men. The 1,500 grouped immediately into three squares standing parallel to face the Armagnac horse, and threw themselves ferociously at the Armagnac front. Over a quarter of the Swiss were armed with the eighteen-foot pike, and their charge into the Armagnac horse produced a deadlock which lasted for four hours. An attempt by Basle to come to the aid of the Swiss force was unsuccessful. After five hours the Confederate squares began to weaken, but the Swiss managed to make a withdrawal to the small hospital of St Jacob, which was surrounded by a wall high enough to offer some protection. Under bombardment from the Armagnac artillery and sustained fire from an élite troop of archers the Swiss suffered heavy casualties. As the walls of the hospital were reduced to rubble, the Armagnac foot stormed the courtyard. In the bitter hand-to-hand combat which followed the Confederates fought to the last man.

St Jacob-en-Birs became at one and the same time a hallmark of Swiss courage, and of ill-discipline. Four thousand Armagnacs were slain, but the losses to Berne also proved costly. What this battle also highlighted was the major tactical weakness created by the absence of artillery: more Confederates were lost to the Armagnac bombardment than in the hand-to-hand fighting.

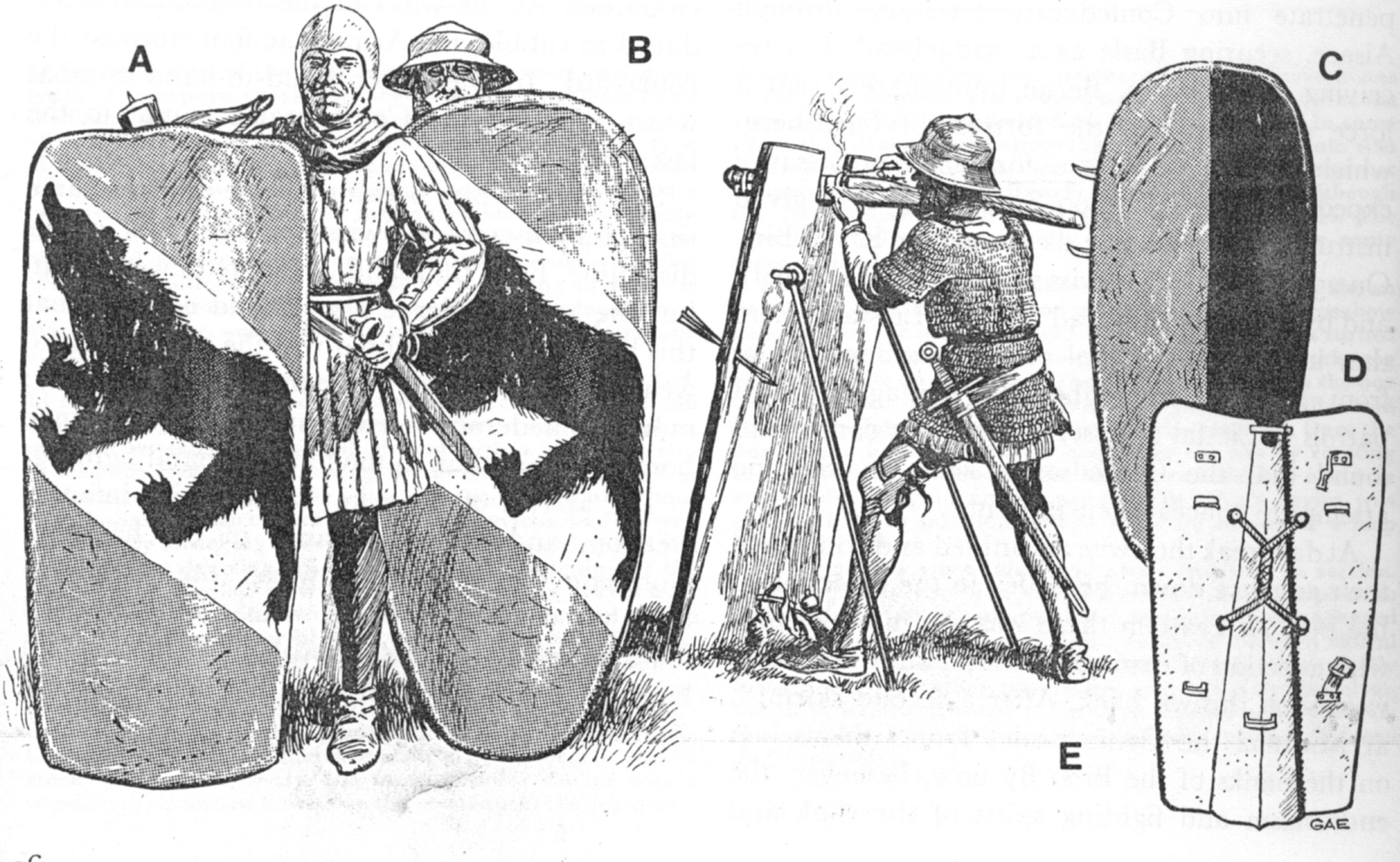
The arrival of the pike as the major infantry weapon, and the appearance of the handgun alongside the crossbow towards the middle of the 15th century, brought with them the need for a more systematic approach to tactics and battle formations. This is illustrated in the Zürich roll calls of 1443–44:

The Contingent of Canton Zürich 1443
(showing an example of the distribution of types of weapon in the mid-15th century):

	Crossbows	*Hand guns*	*Pikes*	*Halberds & Axes*	*Total*
The city of Zürich	128 (20)	45 (7)	103 (16)	363 57)	639 (100)
Cantonal Districts	345 (16.3)	16 (7)	532 25)	1228 (58)	2121 (100)
Whole Canton	473 (17)	61 (22)	635 (23)	1591 (57.8)	2760 (100)

By the mid-15th century the Confederate battle formation was characterized by three columns: the Vorhut (van), the Gewalthut or Gewalthaufen (centre), and the Nachhut (rear), which seem to have had no definite size or numbers, this being dependent on the terrain and the chosen tactics for engaging the enemy.

The Vorhut generally either formed the largest or second largest unit of the battle formation. It was here that the bulk of the handgunners and crossbowmen could be found, either between the ranks of pike which formed the outer shell of the van or detached as wings or as a 'forlorn hope'. Sometimes the Vorhut would be despatched to



The pavise, used mainly in siege and defensive operations, is said to have originated in Pavia in the 13th century. Normally of convex shape, it measured some 40–70cm wide by 1 or 1.5m high—exceptionally, 2m. The construction of the pavise (pavese) was usually of light timber covered in parchment, pigskin or leather. This was either left natural or painted in the particular colours of the canton or city. 'A', 'B' and 'C' are all 14th century Bernese shields. 'A' and 'B' are red, with a black bear on a yellow diagonal stripe: the figures give the scale. 'C' is larger, and red and black. 'D' shows a rear view of a 15th century pavise. 'E' is an example of a simple 14th century piece showing metal supporting rods. Some remaining examples show spikes riveted to the bottom edge so that they could be positioned in the ground without the support of the man-at-arms behind it. There are further examples with rings attached to the top edge to facilitate propping. By the time of the Burgundian Wars the pavise had ceased to be used by the Swiss as a protective shield for crossbowmen and handgunners, although it was probably used in siegework.

carry out reconnaissance or engineering work. The organization of the Zürich Haufen for the campaign against the Habsburgs in 1445–46 provided for the following complement in the van:

250 horse
300 foot (150 men from Zürich, 150 from Winterthur)
40 men with axes } from Winterthur
20 with shovels } and Kiburg
1 horse for carrying rope and equipment.

The Gewalthaufen was usually the largest unit in the Swiss formation and it was here that the cantonal or Confederate banner would be found encircled by a forest of halberds and cantonal Fähnlein or standards—hence the term *Bannerhaufen*. This nucleus was in turn surrounded by a wall of pike. Reconstructions from the Zürich roll lists give some impression of the dimensions of such a unit. On each side of the Banner stood 28 ranks of 20 men deep making an oblong formation with a front of 56 men and a depth of 20 men. However, if one accounts for the space required for each man to handle the pike (this being less nearer to the front than at the rear, in order to maintain a tighter bloc) then the Bannerhaufen must have resembled a square more than an oblong shape. According to the above reconstructions the Zürich Gewalthaufen must have been some 168ft (56 × 3ft) at the front by 140ft deep (20 × 7ft).

The Nachhut, which often had the rôle of supporting the centre or, as at Morat, of advancing as a wing, varied in both numbers and weaponry. At Morat the rear consisted principally of halberdiers (some 5,000 men), whereas at Nancy 600 handgunners were left to act as a mobile unit which could come to the assistance of both the van and the centre. The Zürich formation, on the other hand, shows the Nachhut comprising halberdiers, pikemen and crossbowmen and handgunners.

It is generally accepted that the usual Swiss battle formation was for the three columns to advance in echelon with the Vorhut making for a predetermined point in the enemy's line while the centre advanced parallel but slightly to the left or right rear of the van. The rear followed the centre in similar formation, although when battle was engaged it would often halt before a decision was made to commit it. The tactical value of such a formation deserves special note. Firstly, it allowed for the momentum to be maintained once the van had engaged the enemy's front line. Secondly, the echelon formation could easily be adapted into a wider front; the Gewalthaufen could always advance if there was danger to the left flank of the van and likewise the rear could come to the assistance of the threatened centre. In each case the enemy would be caught in its right flank. Thirdly, such a battle order always permitted space for wounded, disarmed, or even defeated men to retreat and regroup at the rear of the column.

Having said this, it cannot be claimed that the echelon formation represented the *typical* battle order of the Swiss. A study of Confederate tactics during the Burgundian Wars bears this out.

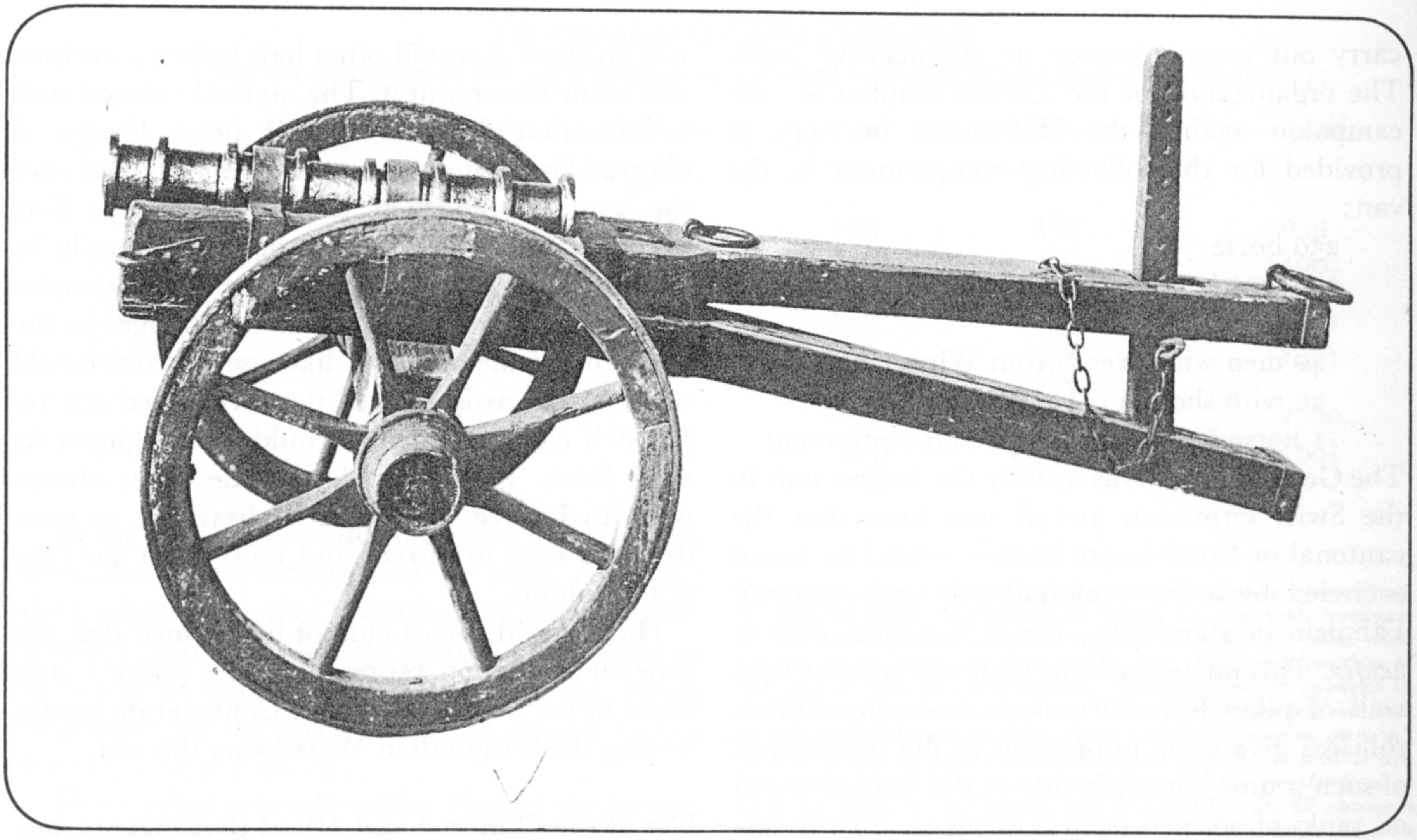
List of the Cantonal and Allied Contingents and Commanders during the Burgundian Wars

The Eight Cantons

ZÜRICH
Grandson: 1,701 men
Morat: approx 2,500 men
Officers:
Hericourt: Felix Keller, Hans Waldmann
Grandson: Heinrich Göldli
Morat: Hans Waldmann, Marx Röist, Felix Keller, Heinrich Göldli
Nancy: Hans Waldmann

BERN
Grandson: 7,343 men (incl. Biel and Neuchâtel)
Morat: approx 7,800 men, including the garrisons of Morat, Biel and Neuchâtel
Officers:
Hericourt: Niklaus von Scharnachthal, Petermann von Wabern
Pontarlier and Blamont: Niklaus von Diesbach
Grandson: Niklaus von Scharnachthal, Petermann von Wabern, Hans von Hallwyl
Morat: Niklaus von Scharnachthal, Petermann von Wabern, Hans von Hallwyl (Vorhut), Adrian von Bubenberg (Morat).
Nancy: Brandolf vom Stein

LUZERN
Grandson: 1,861 men
Morat: 2,000 men
Officers:



The artillery crews were generally recruited from the city craftsmen. The first records of an officer in charge of ordnance date from 1414. The *Zeugherr,* as he was known, was responsible for co-ordinating the Büchsenmeister. These master gunners were usually identical with the casters, and in the case of larger contingents were generally responsible for the heavier artillery pieces. On campaign these craftsmen (usually mounted) were accompanied by their journeymen as well as a complement of smiths, carpenters, rope makers and carters. Smaller field pieces were manned (as for example in Basle) by trained volunteers. The usual equipment consisted of a copper loading scoop, a ramrod, and a felt or brush 'sponge'. A bucket of water was always kept alongside the cannon. Acids were often added to the water to wash out the inside of the barrel and cloths and skins would be soaked in cold water and placed on the barrel to cool it down. A pan holding hot coals, supported on a tripod, was used to heat shot and/or to keep the wire primer glowing. By the latter half of the 15th century powder bags slowly began to replace loose powder, which had often caused problems for gun crews. (Schweizerisches Landesmuseum, Zürich)

Hericourt: Heinrich Hasfurter
Grandson: Heinrich Hasfurter
Morat: Heinrich Hasfurter, Kaspar von Hertenstein (Nachhut)
Nancy: Heinrich Hasfurter

URI

Grandson: unknown
Morat: approx 600 men
Officers:
Morat: Hans Fries (?)
Hans Imhof d.J. (?)

SCHWYZ

Grandson: 1,181 men
Morat: approx 1,500 men
Officers:
Grandson: Ulrich Kätzi
Morat: Ulrich Kätzi, Kietrich I. Inderhalden (?)
Nancy: Ulrich Kätzi

OBWALDEN UND NIDWALDEN

Grandson: 455 men
Morat: approx 500 men
Grandson: Rudolf Zimmermann (?)
Hans Ambühl (?)
Morat: Rudolf Zimmermann (?)
Hans Ambühl (?)

GLARUS

Grandson: 780 men (with Oberland, Gaster and Thurgau)
Morat: 1,000 men (with Oberland and Gaster)
Officers:
Grandson: Hans Tschudi
Morat: Hans Tschudi

ZUG

Grandson: 434 men
Morat: approx 550 men
Officers:
Grandson: Johannes Schnell (?)
Morat: Johannes Schnell (?)

Allies

FREIBURG
Grandson: 828 men
Morat: 1,000 men
Officers:
Grandson: Petermann de Faucigny
Morat: Petermann de Faucigny

GREYERZ
Morat: 205 men
Officer: Ludwig I. von Greyerz

WALLIS
Morat: 800 men
Officer: Niklaus Zurkinden

NEUCHÂTEL
Morat: 100 men (in the Bern contingent)
Officer: Ritter Cleron

BIEL
Grandson: 213 men
Morat: 200 men (in the Bern contingent)
Officers:
Grandson: Peter Göiffi
Morat: Peter Göiffi

SOLOTHURN
Grandson: 928 men
Morat: approx 990 men
Officers:
Hericourt: Benedikt Konrad
Grandson: Conrad Vogt
Morat: Urs Steger
Nancy: Jakob Wyss

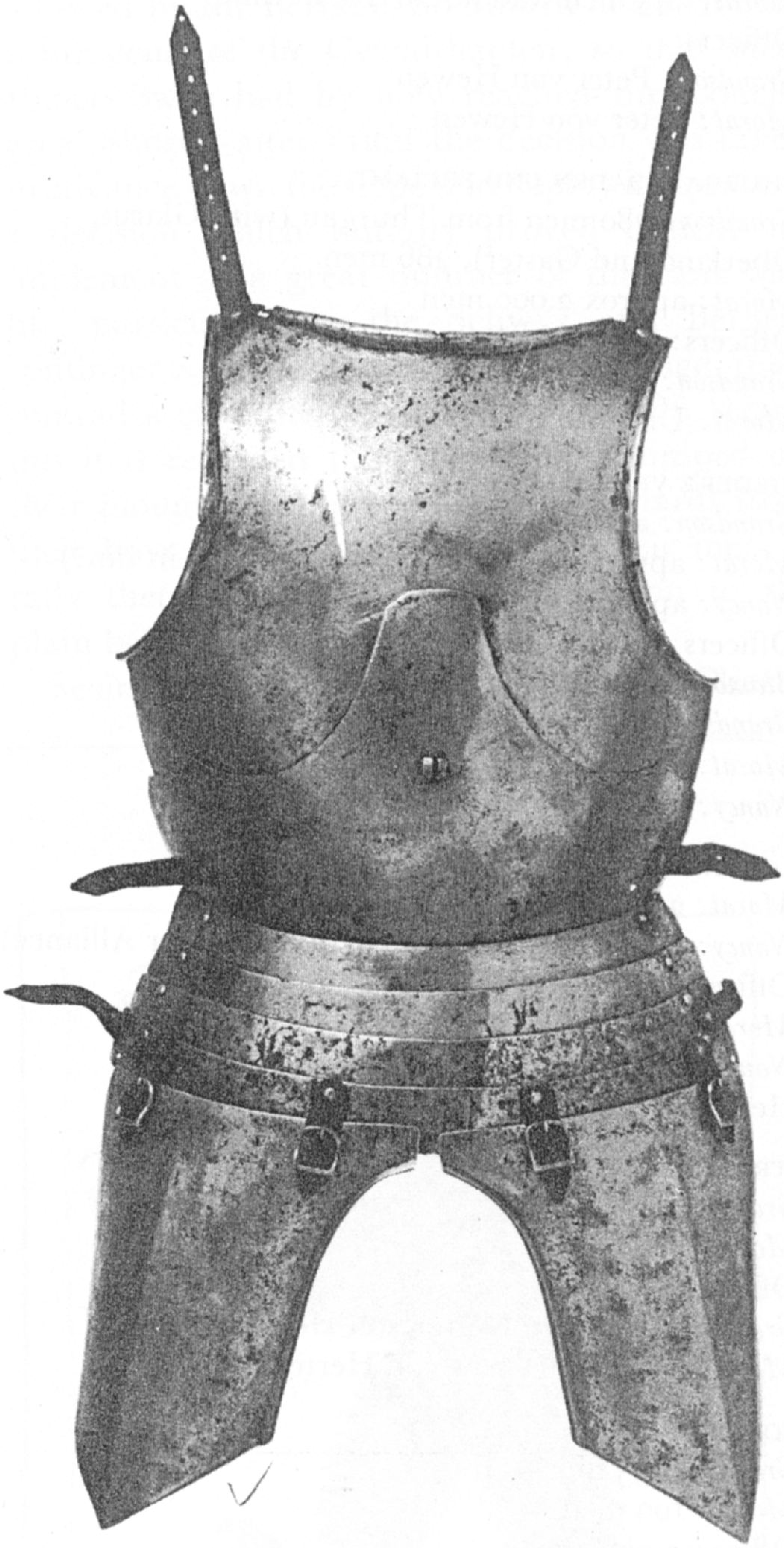
BASEL
Grandson: 1,200 men
Morat: 2,100 men
Officers:
Blamont: Peter Rot
Grandson: Peter Rot
Morat: Peter Rot

BISHOPRICS OF BASEL AND STRASSBURG
Morat: approx 1,000 men
Officer: Hermann von Eptingen

SCHAFFHAUSEN
Grandson: 106 men
Morat: approx 200 men (did not arrive in time)
Officers: Eberhard von Fulach (?), Ulrich von Tüllerey (?)

APPENZELL
Morat: approx 600 men (did not arrive in time)
Officer: Ulrich Tanner (?)

STADT ST GALLEN



This surviving breast plate is a very good example of the type of armour worn by the rank and file. It is Milanese and dates from *c.*1460; the breast section is in two parts bolted together, and is furnished with tassets. Sometimes the upper section was covered in fabric. According to the 'Schilling Chronicles' this type of armour seems to have been most popular, and despite shortcomings in supply or an unwillingness on the part of the men to wear such cumbersome plate, it was probably invariably worn by the front ranks of pikemen. (Château de Grandson)

Grandson: 131 men
Morat: 150 men (did not arrive in time)
Officers:
Grandson: Ulrich Varnbüler
Morat: Ulrich Varnbüler

ABT ST GALLEN
Grandson: 151 men

Morat: 445 men (did not arrive in time)
Officers:
Grandson: Peter von Hewen
Morat: Peter von Hewen

THURGAU, BADEN UND FREIAMT
Grandson: 780 men from Thurgau (with Glarus, Oberland and Gaster), 286 men
Morat: approx 2,000 men
Officers:
Grandson: Hans Tschudi
Morat: Ulrich von Hohensax

NIEDERE VEREINIGUNG
Grandson: approx 1,000 men
Morat: approx 3,000 men (did not arrive in time)
Nancy: approx 12,000 men (with Lorraine)
Officers:
Blamont: Oswald von Thiersten
Grandson: Hermann von Eptingen (?)
Morat: Oswald von Thierstein
Nancy: Wilhelm Herter von Hertenegg

LORRAINE
Morat: 200 men
Nancy: approx 12,000 men (with the Lower Alliance)
Officers:
Morat: Herzog Renatus von Lorraine
Nancy: Oswald von Thierstein
Herzog Renatus von Lorraine

STRASSBURG
Grandson: 259 men
Morat: 850 men
Officers:
Grandson: Wilhelm Herter von Hertenegg
Morat: Wilhelm Herter von Hertenegg

COLMAR
Grandson: 35 men
Morat: 100 men
Officer: unknown

ROTTWEIL
Morat: approx 50 men
Officer: Boley der Rüed

(From *Die Burgunderbeute und Werke der burgundischen Hofkunst*, Berne 1969. Courtesy the Historisches Museum, Berne. Original place-name spelling retained.)

The Burgundian Wars

The Burgundian Wars—the outcome of Duke Charles the Bold's attempts to establish a Burgundian Empire stretching from France to Italy—opened with the brief but decisive encounter at Hericourt in 1474. Here a 12,000-strong Burgundian relief column was forced to retreat within a wagon fort at Frahier, where it was finally overrun. The decisive manner in which a combined Swiss, Austrian and Alsatian army drove back the Burgundians at 'push of pike' was the first indication of a flexibility of tactics which was to be developed even further at Grandson. Duke Charles's failure to recognize its significance was eventually to prove fatal.

Grandson 1476

In the early months of 1476, Charles the Bold was advancing on Berne as part of his grand strategy to cut a path through the Confederation. Berne, aware of the Duke's plans and approach routes, had ordered the evacuation of Yverdon and the reinforcement of the garrison at Grandson. Grandson stood between Charles's camp and the approach route to Neuchâtel and Berne. After a siege the Burgundians crushed Swiss resistance, but their killing of Swiss prisoners brought down on them the wrath of the Confederation. Grandson had already fallen by the time the Swiss had drawn up their forces on 1 March between Boudry and Bevaix, two villages to the south of Neuchâtel. On 2 March both armies began advancing towards each other, without knowing the other was doing the same. At Concise, a small hamlet some 7.5km to the north-east of Grandson, the two forces met quite accidentally. The scouting troop of the Swiss surprised the Burgundian Vorhut while the latter was pitching the advanced camp before the hamlet. Alerted, Charles formed his Vorhut in haste.

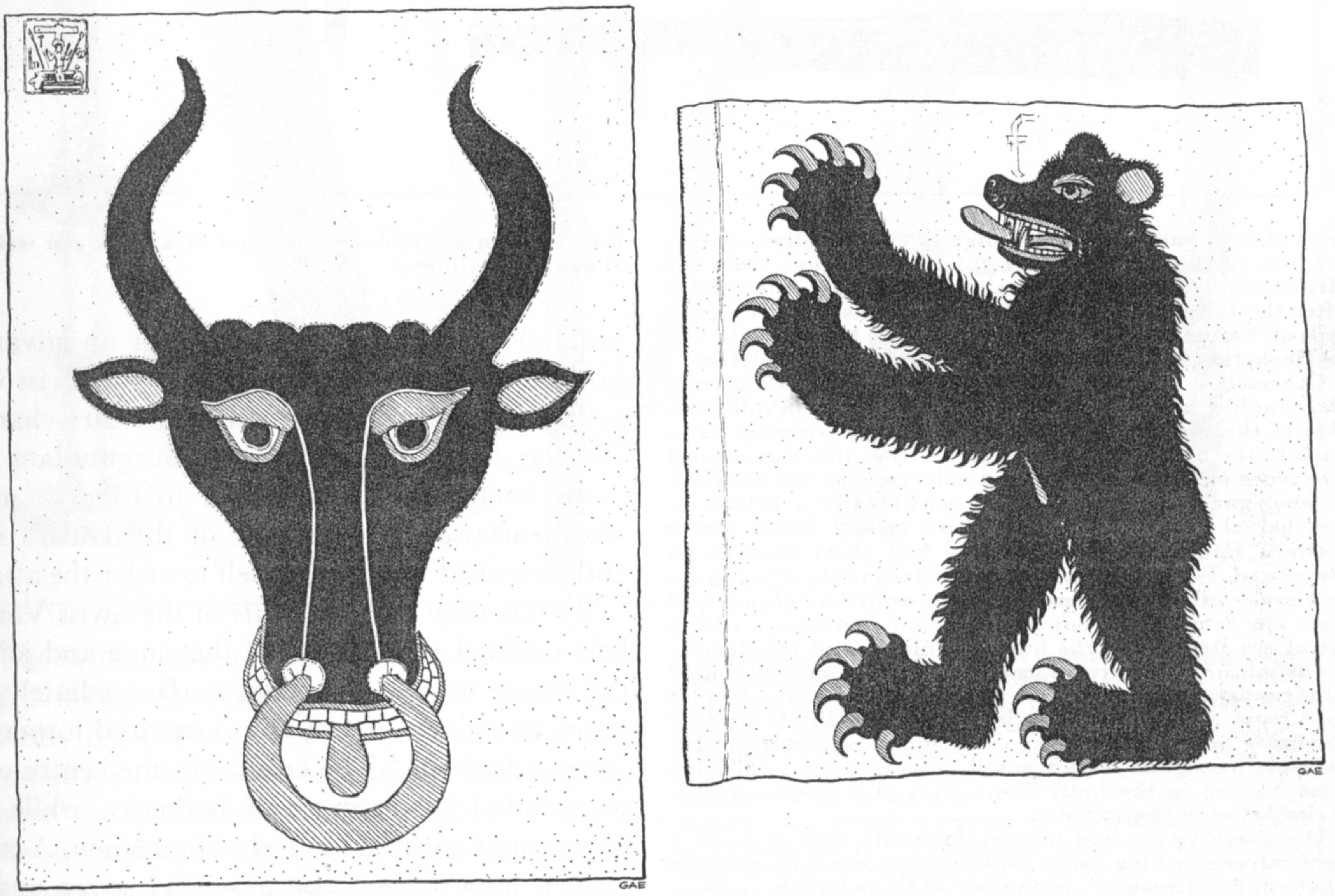
The Confederate foraging column (numbering 2,500 from the cantons of Schwyz, Lucerne, Zürich, St Gallen and the towns of Biel and Thun) had left St Aubin in the direction of Grandson. They were followed on the upper approach route by the main Swiss Vorhut comprising contingents from Berne, Solothurn and Fribourg while the Gewalthaufen abandoned its position at the fortress of Vaumarcus and brought up the rear.

The Burgundian van had drawn up its advanced camp on a slope to the west of Concise. The slope extended through vineyards up to the woods through which the Swiss advanced scouting party and Vorhut were making their advance. On reaching a suitable vantage point the Swiss commanders ordered a temporary halt; however, they could not prevent groups of eager handgunners from the Schwyzer contingent from skirmishing down the slopes and firing on the Burgundian positions below.

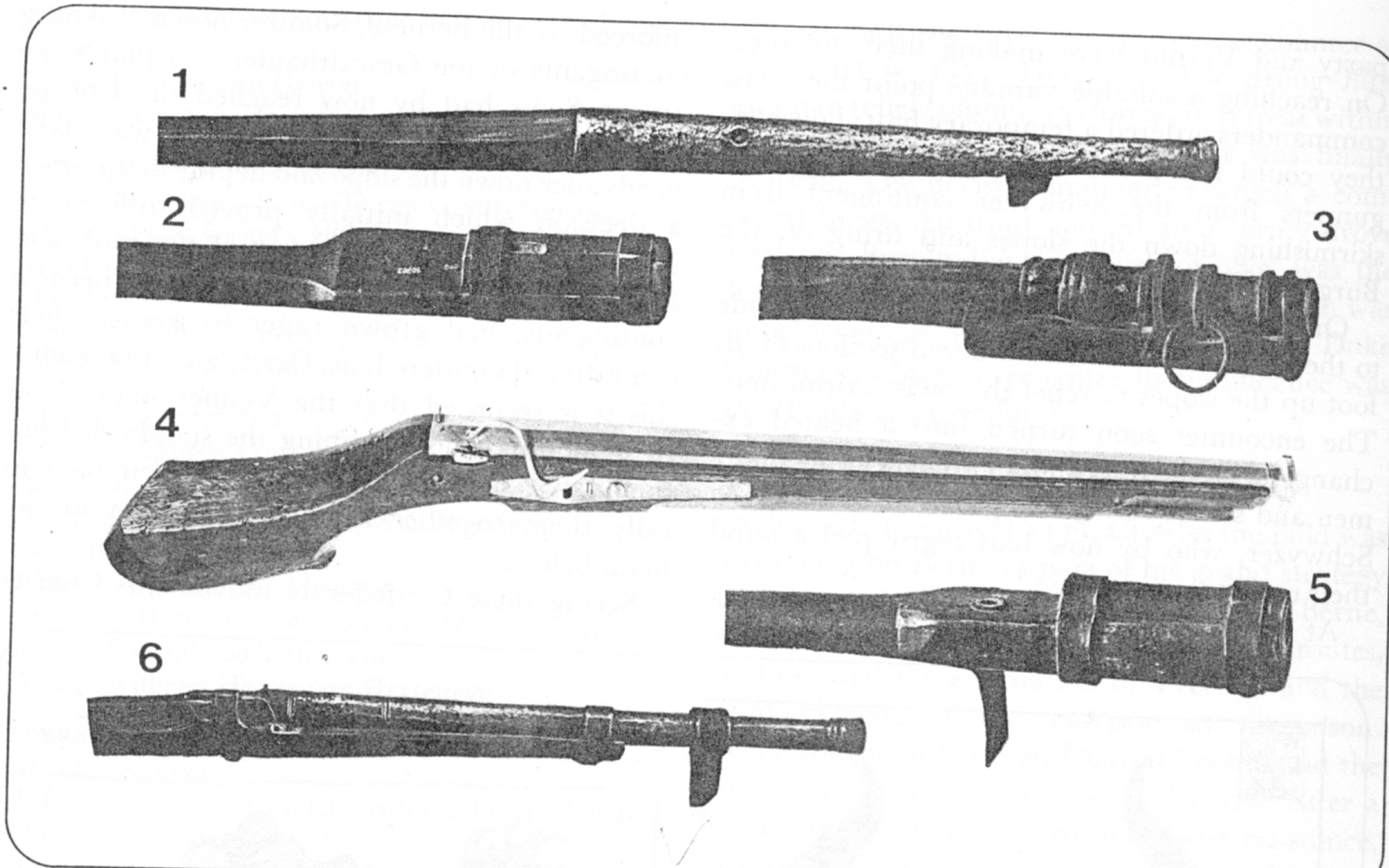
On hearing of this the Duke immediately rode to the front of the van and ordered sections of his foot up the slopes to repel the Swiss skirmishers. The encounter soon turned into a heated exchange, with the Burgundian archers losing many men and subsequently being driven back by the Schwyzer, who by now had regrouped around their ensign.

At this point the Confederate Vorhut was reinforced by the Bernese, Solothurn and Fribourg contingents of the Gewalthaufen; so that some 10,000 Swiss had by now reached the Concise area. Shortly after 11am the decision was taken to advance down the slope and deploy in square—a decision which initially proved difficult to implement as a great number of the rank and file, particularly in the Schwyz and Bernese contingents, had grown eager to avenge their comrades slaughtered at Grandson. On seeing this it is recorded that the Venner jumped off their mounts, and, grabbing the standards from their boys, sprang to the front of their men to rally them together as they spilled on to the plain below.

Seeing these Confederate movements Charles



Two famous banners, drawn from photographs of the originals preserved in Switzerland. *(Left)*, the 'Uri Bull', the oldest Landesbanner, carried at Morgarten and Laupen. After Sempach, 1386, the Uri banner no longer bore the corner emblem; instead a small white cross was sewn on between the horns of the bull. The banner underwent a further change in the first half of the 15th century when the corner piece bearing the resurrection of Christ with John and Mary was restored. The drawing here shows the banner during this period as carried at Zürich, Diessenhofen, Winterthur, Waldshut, Landshut and Grandson. *Colours:* Yellow background, full colour resurrection scene embroidered in upper left hand corner; black bull's head; red ears, eyebrows, lips, tongue and nose ring; white teeth (edged black), white nostrils, piping on nose, brows and eyes. *(Right)*, the Landesbanner of Appenzell, as carried in the Burgundian Wars. *Colours:* White ground, black bear (painted); red claws, details on body, eyes, lips, tongue and ears. The meaning of the faded 'F' above the bear's nose is unknown.



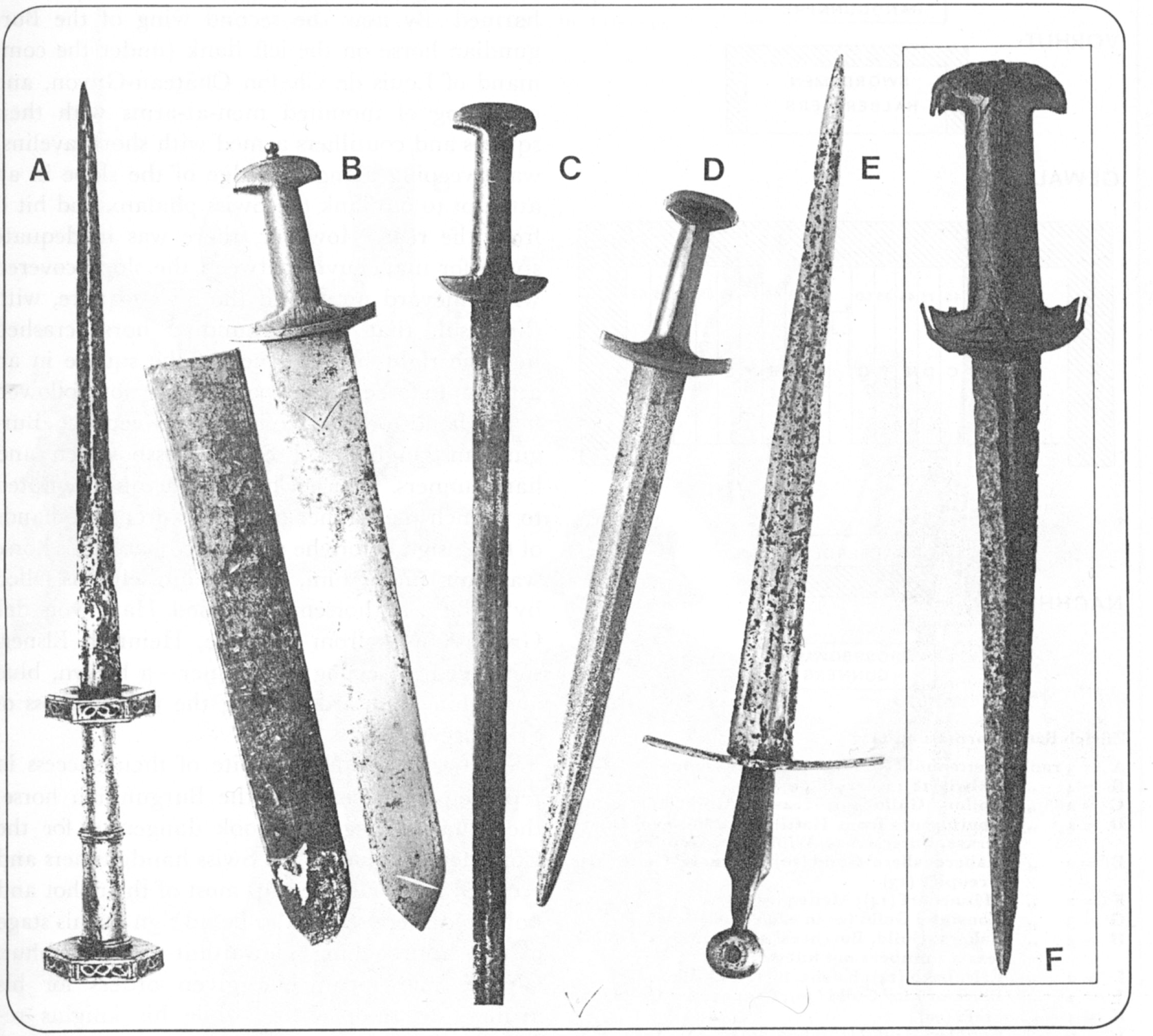
(1) A simple handgun with a slightly curved tiller set into the base of the barrel. (2, 3 & 5) Early handguns from the Historisches Museum in Berne. (4) Although this piece dates after the Burgundian Wars, it nevertheless illustrates the type of 'button' trigger release which may have been in use. (6) Hook-gun. (Château de Grandson and G. A. Embleton)

Generally it remains difficult to classify and reconstruct the handling of the handgun during the period in question. One of the earliest records of this weapon actually dates back to the Sempach Wars. It seems that there developed two types of handgun: the hand culverin and the hackbutt or hook-gun. The hand culverin consisted of a bronze or iron barrel on a wooden tiller with a calibre which varied between 14mm and 20mm. Some had short barrels, as illustrated. The barrels were usually fixed to the tiller either by a series of metal straps or thongs, or by barrel pins and lugs. The Schilling chronicles show some handguns with a metal eye attached to the butt: the function of this loop is not definite. Early contemporary illustrations show mounted handgunners using the eye to suspend the gun on a loop of cord from around the neck in order to facilitate loading and firing, while 16th century woodcuts show Landsknechts carrying handguns with a small powder horn suspended from a hook in the butt. The weight of a hand culverin varied between 3kg and 6kg.

The much larger and heavier hackbutt was virtually a light culverin, with a wider calibre (20–40mm with a barrel length of 800–1,200mm). A number of these larger weapons were most certainly used at Grandson, and are on display today at Morat and Grandson. The barrel took on an octagonal, hexagonal or round cross-section and was in some cases attached to the tiller by metal bands or barrel pins. The hackbutt was also characterized by a triangular piece of metal which extended from below the front end of the barrel. This prevented recoil, and was either hooked over the battlements of a castle (hence the term hook-gun) or over a wooden haft supported on a trestle for use in the field. The hook-gun was usually operated by two men: while the 'culveriner' held and aimed the weapon, his assistant poured the priming powder into the touch hole, applied the match (or red-hot wire) to ignite the powder, and helped load the gun afterwards. The shot of a hook-gun weighed about 65 grammes.

ordered his infantry to prepare for an advance; his intention was first to decimate the Swiss with artillery fire, and then to launch cavalry charges. To the astonishment of the Burgundians the Swiss knelt down and began to pray, a move which aroused the derision of the Duke's men and provoked Charles himself to order the attack.

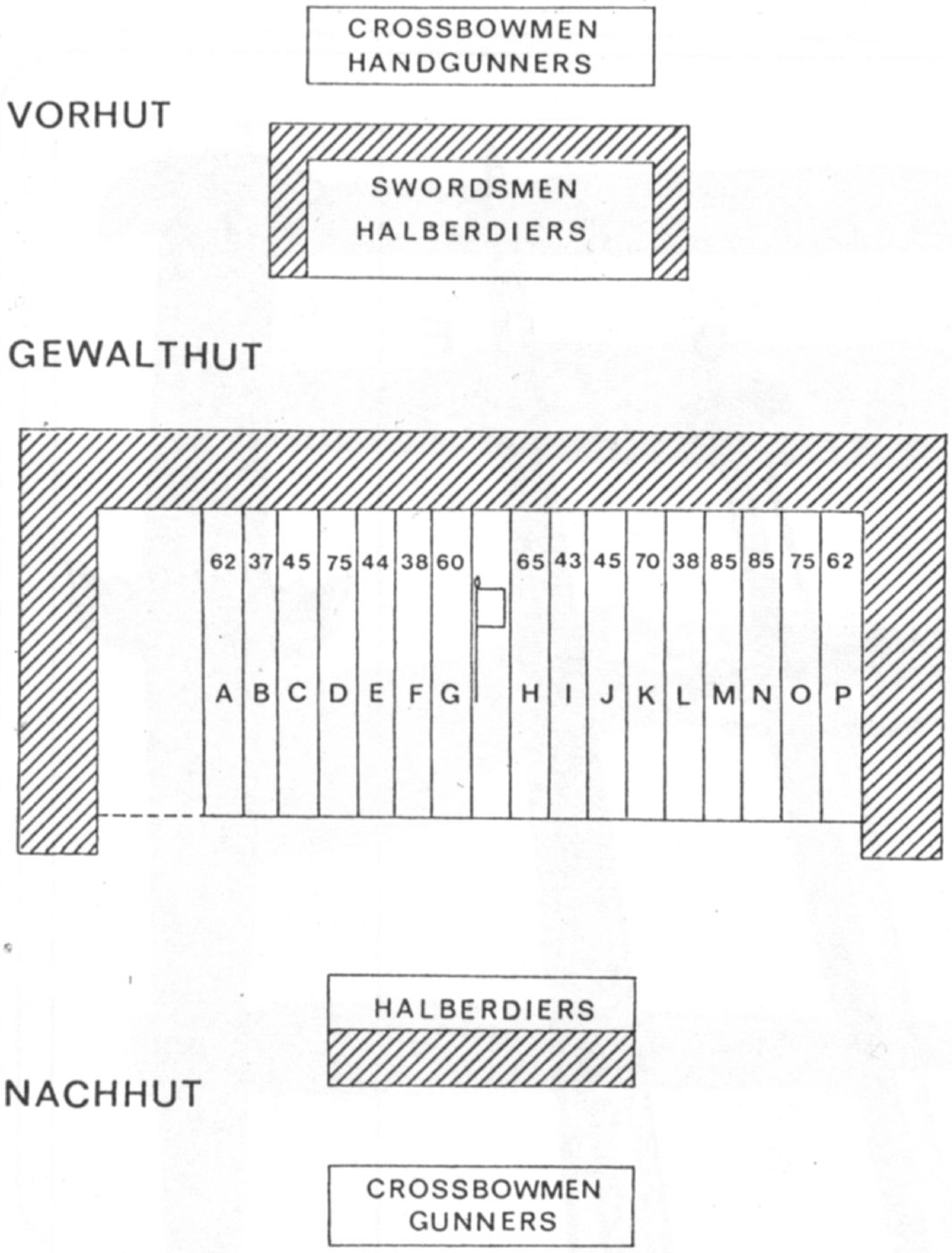
By this time the remnants of the Swiss Vorhut had reached the bottom of the slope and joined the group around the ensigns. Immediately the order was given to move into squared formation (*gevierte Ordnung*). The ensigns in the centre were surrounded by a forest of halberds, while the outer ranks consisted mainly of pikemen. A small forlorn hope of 300 (Bernese, Schwyzer and St Gallen in equal numbers) was sent out in front of the square to skirmish with their handguns and crossbows. At the side nearest the lake the Bernese drew up their field pieces, which they had struggled to drag over the hill through the snow. The few mounted Swiss who had advanced with the Vorhut were positioned immediately at the rear to await the remainder of the Swiss force.



The dagger 'A' was a weapon common amongst both the men-at-arms and the rank and file. The weapon shown here (Château de Grandson) is in fact a Burgundian model 'à rouelle'. Schilling illustrates the Swiss in his chronicles with weapons halfway between a dagger and sword. The term Schweizergegen is used to describe the typical Swiss type of sword as illustrated in 'B', 'C' and 'D'. (Landesmuseum, Zürich). The handle was usually of wood and the scabbard was fashioned from wood and/or leather and embellished with iron, silver or bronze fittings. Illustration 'E' (Château de Grandson) shows a typical Swiss long sword. The two-handed sword often associated with the Swiss was in fact more popular among the Landsknechts. When used by the Swiss it generally had a simple cross-shape, and there was little of the elaboration common among the German counterparts. The first record of the two-handed sword being used by the Swiss is made by Paul Jovius, who relates its use by the Swiss forlorn hope at the battle of Fornouvo in 1495. There are illustrations in the Schilling chronicles of some men from an Uri contingent armed with large swords. 'F' shows a Swiss dagger found in Lake Morat; total length, 46.7cm. (Metropolitan Museum of Art, New York)

The Swiss square must have been an impressive sight. Some 10,000 men in breast plates and helmets packed together to create a veritable forest of pikes and halberds. In the centre of the square was a fluttering banner surrounded by some 30 standards; and before it was the mounted commander, with his long beard and a tunic down to his knees. Some witnesses claim this to have been Scharnachtal; others believe it may have been Ulrich Kätzy, the Schwyzer captain.

The battle commenced with Burgundian artillery fire, which tore into the Swiss square felling ten men in one section. The Bernese culverins returned several damaging volleys. The Swiss forlorn hope was soon to feel the brunt of the first



Zürich Battle Formation, 1443

A = 3 ranks Mettenbühl (50 men); Knonau (12 men)
B = 4 ,, Talwil (18); Rüschlikon (19)
C = 2 ,, Tailors' Guild (29); Weavers' Guild (16)
D = 4 ,, Contingents from Hottingen, Fluntern, Oberstrass, Unterstrass, Wiplingen, Weiningen
E = 2 ,, Haberdashers' Guild (10); Vintners' Guild (21); Greupler (13)
F = 2 ,, Mânnedorf (14); Meilen (24)
G = 3 ,, Constafel Guild (20 in each rank)
H = 3 ,, Bakers' Guild, Butchers' and Tanners' Guilds (exact numbers not known)
I = 2 ,, Erlenbach (14); Küsnach (12); Zollikon (17)
J = 2 ,, Blacksmiths' Guild (30); Carpenters' Guild (15)
K = 4 ,, Stäfa (70)
L = 2 ,, Cobblers' Guild (17); Boatsmen (13); Nerach (8)
M = 4 ,, Greifensee (85)
N = 4 ,, Monchaltof (31); Regensburg (20); Oberhausen (16); Bülach (10); Rümlang (8)
O = 4 ,, Höngg (21); Andelfingen (16); Oberglatt (8); Hargen (30)
P = 3 ,, Maschwanden (17); Offenbach (15); Affoltern (11); Hedingen (9); Stallikon (10)

(After J. Häne: *Militärisches aus dem alten Zürichkrieg*)

Burgundian cavalry charge, and they scarcely reached the protection of the front rank of Swiss pike, which had levelled their weapons to meet the impact of the first wave of enemy horse.

In the second wave Charles ordered his lancers into a wedge formation and placed himself at the head of the charge. In the event this had little effect on the Swiss 'hedgehog'. The Duke's horse was wounded under him, but he escaped unharmed. By now the second wing of the Burgundian horse on the left flank (under the command of Louis de Chalon Château-Guyon, and consisting of mounted men-at-arms with their squires and coutilliers armed with short javelins) was sweeping along the edge of the slope in an attempt to outflank the Swiss phalanx and hit it from the rear. However, there was inadequate space for manoeuvre between the slope covered with vineyard props and the Swiss square, with the result that the Burgundian horse crashed into the right hand corner of the square in an attempt to force its way past. There now followed fierce hand-to-hand combat between the Burgundian knights and Swiss crossbowmen and handgunners. Twice Château-Guyon attempted to wrench the banner of Schwyz from the hands of the ensign before he was forced back. His horse was slain under him, and he himself was felled by a Bernese horseman named Hans von der Grub. A man from Lucerne, Heinrich Elsner, succeeded in seizing his banner—a brown, blue and white standard bearing the golden cross of St Andrew.

After three hours, in spite of their success in repelling the assaults of the Burgundian horse, the situation began to look dangerous for the Confederate square. The Swiss handgunners and crossbowmen had used up most of their shot and bolts and there seemed to be no sign at this stage of the approaching Gewalthut and Nachhut. Charles had meanwhile given orders for his artillery to re-open fire while his knights reformed for what would be the decisive attack.

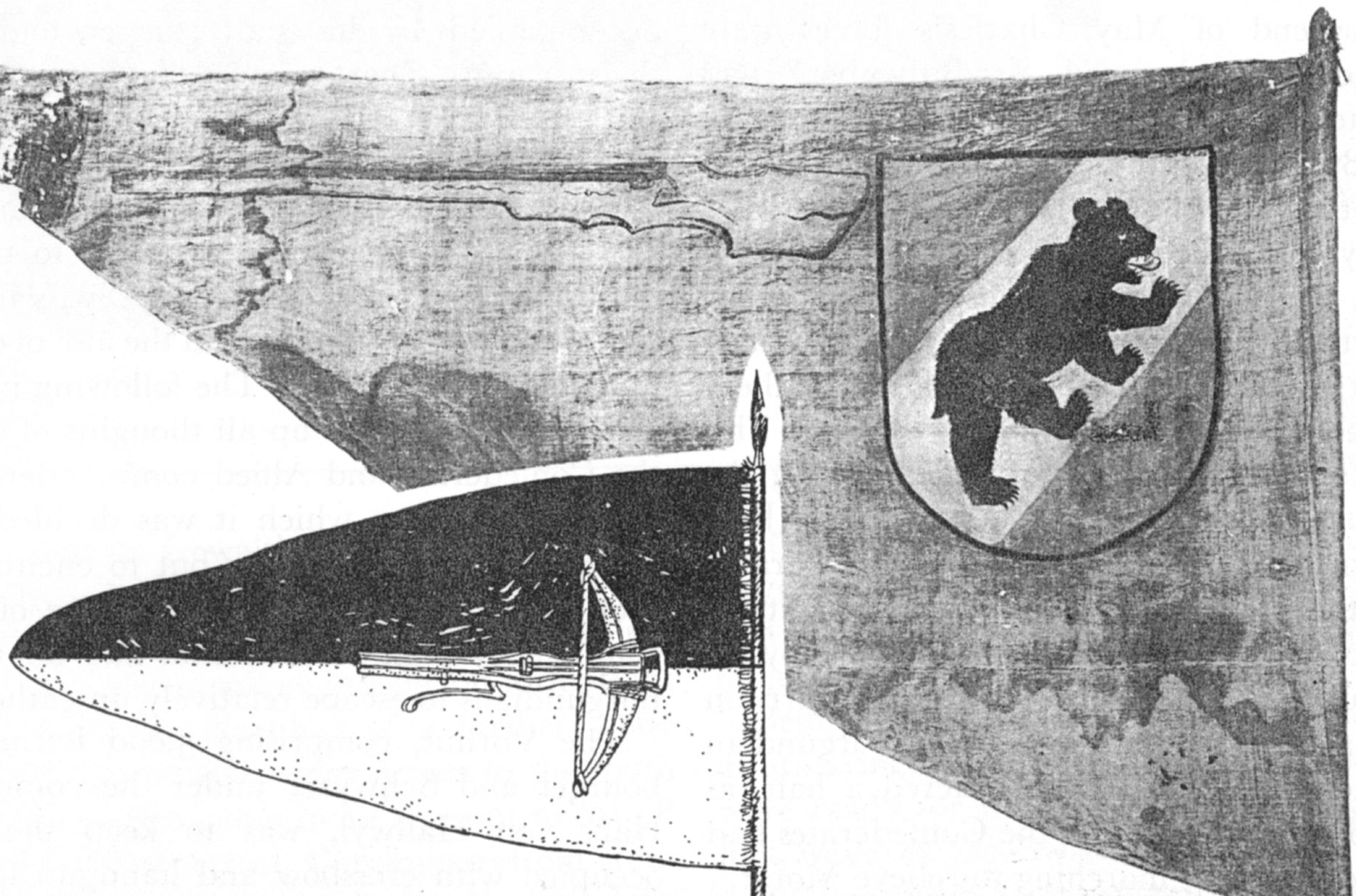
It was at this stage in the battle that the Duke committed a grave error. Believing that the Swiss square represented the main bulk of the Confederate force, the Duke's plan was to draw it away from the protection of the vine slopes so that his horse could then drive home at the flank and the rear where the Swiss would be more vulnerable.

To this end he ordered his artillery and archers to move to the flanks and his main block of infantry to retreat slightly, with his horse remaining in a forward position ready to carry out his decisive manoeuvre. However, this move was to have a devastating effect on the Burgundian army. At the very moment the movement seems to have been taking place, the main Swiss columns appeared: Lucerne, Uri, Unterwalden along the upper approach, Zürich, Glarus, Zug, Schaffhausen, Strasbourg and Basle on the lower approach. Under the shrill and drone of their war horns, all three columns now advanced on the Burgundians while they were re-deploying. It is difficult to tell whether the appearance of the Confederate main and rear columns alone spread panic through the Burgundian ranks. What is sure is that at a critical stage in the battle The Burgundian centre and rear, which had followed their van in a rather disorderly fashion, now saw the Burgundian vanguard yielding ground; and the sound of the Swiss war horns led these somewhat ill-disciplined Italian and German mercenaries to believe that the van had been repulsed and was retreating.

Panic-stricken, they suddenly turned and fled causing chaos in the rear, which immediately followed suit. Charles was thus left in command of his horse and artillery only, to fight out the battle in a hopelessly isolated position.

Charles, forced to give up the fray, followed his fleeing troops and tried desperately to rally them at Arnon, but to no avail. The Swiss, for their part, did not press home the advantage which the Burgundian rout offered to them in military terms. Instead they contented themselves with the fabulous booty which had been left in the Burgundian camp at Grandson. The Burgundians had lost some 300 men against 200 Confederates, although the number wounded by Burgundian archers was considerable.

Grandson was one of the most significant battles in Swiss military history, in that it was the first encounter in which pike tactics were fully and effectively employed in typical squared formation. In addition the outcome of Grandson in military terms was that the Confederates now had an artillery park of some 400 pieces, which



Each *Schützenfähnlein* of handgunners and/or crossbowmen had its own standard. The photograph shows a Bernese *Schützenfahne* dating from the end of the 15th century. *Colours:* White background; red and yellow shield with black bear (Arms of Berne); light brown gun. The Fribourg standard, drawn from the original, dates from 1480 and is black and white with a brown crossbow. (Historisches Museum, Berne, and G. A. Embleton)

the Burgundians had left in their panic. This was to serve them well at Morat and for the rest of the century.

Morat 1476

Grandson did not decide the issue between Charles the Bold and the Confederates. Typically, the Swiss had not pressed home their advantage immediately after the battle but had been content with the enormous booty which had been left behind in the wake of the Burgundian rout. Despite the defeat, Charles immediately began reassembling his army, which like the Confederates had suffered relatively few casualties at Grandson. It took Charles several months, however, to piece together his artillery train. This he did above Lausanne. Meanwhile in the Confederate camp only Berne showed any sign of caution, and on 31 March 1476, 1,500 troops under the command of Adrian von Bubenberg reinforced the garrisons at Morat, which Berne regarded as a vital bulwark against any offensive from the west.

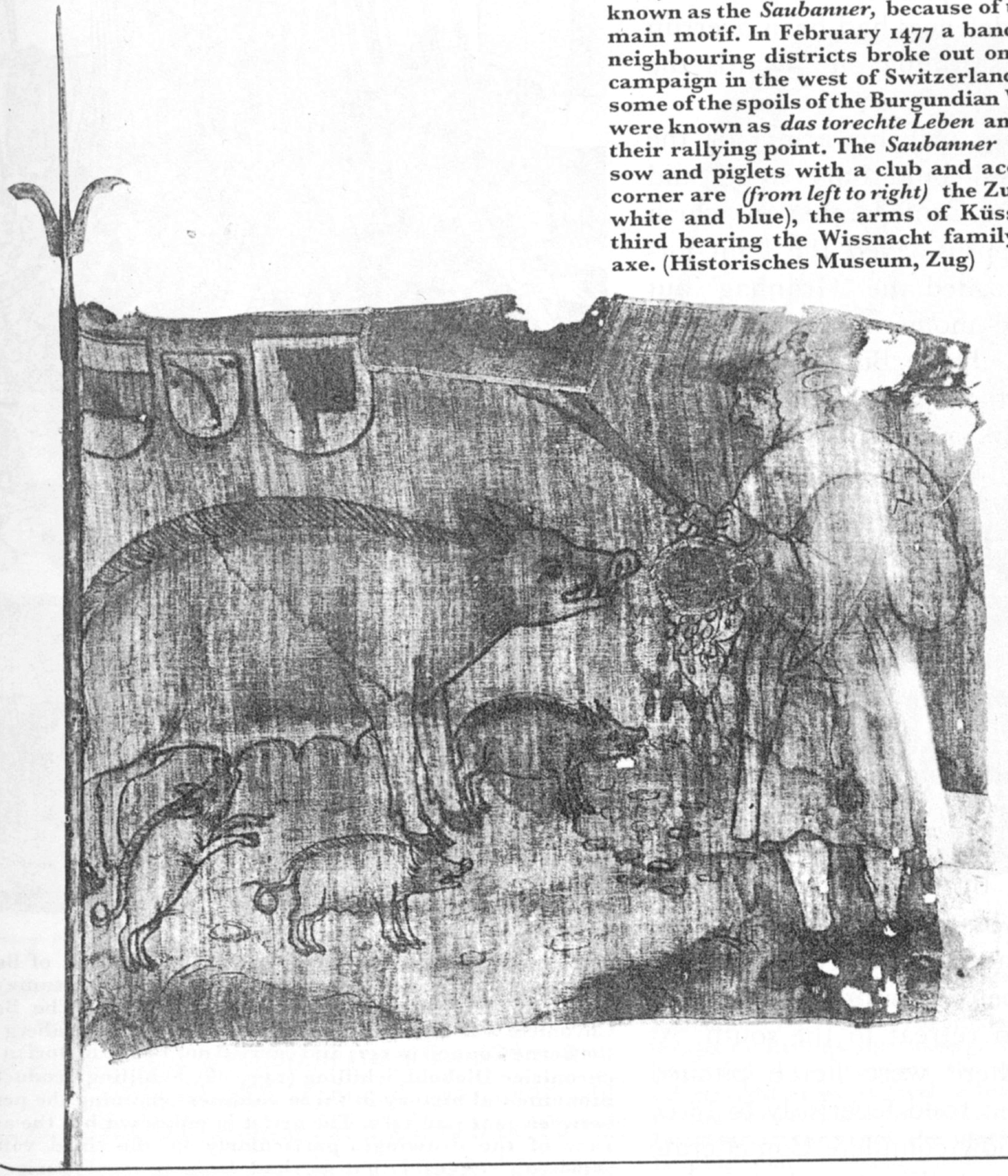
At the end of May Charles's forces were mobilized and advanced—as Bubenberg had anticipated—along the axis Payerne-Morat-Berne. By 9 June the Burgundian army had reached the gates of Morat, and on the following day they laid siege to the city. The Bernese garrison, which had meanwhile been reinforced by a further 500 men, had carefully positioned the bulk of the captured Burgundian artillery (some 420 pieces) on the walls of the city. This proved to have a devastating effect during the initial Burgundian assaults. However, on 17 June Charles ordered his heavy bombards to be drawn up, and these succeeded in blowing away sections of the southern wall. This was followed by an eight-hour-long assault, but somehow the garrison still managed to repulse the waves of Burgundian foot. After the 18th Charles ordered a halt, as news had reached him that the Confederates had mobilized and were marching to relieve Morat.

The Confederate army (including allies) numbered some 25,000 and was complemented by 1,800 mounted men-at-arms under Duke Renatus of Lorraine. Although the Swiss outnumbered the Burgundians by some 2,000 men, Charles's army remained superior in terms of horse and artillery, and for once the Duke was in a position where he could determine the place where battle was to be fought.

The city of Morat lies on the east side of a lake of the same name. To the north and east of the city are wooded slopes. To the south-east of the city there is a wooded hill known as the Bois de Domingue. This was chosen as the fortified headquarters for Charles; he ordered an earthworks to be erected along a ditch at the side of the road connecting the hamlets of Burg and Salvenach. This earthworks and palisades, known as the 'Grünhag', were to act as a principal line of defence against any Confederate assault from the east.

Convinced of an impending Swiss attack at any moment, Charles ordered his army to take up position behind the 'Grünhag' on the 15th. After waiting most of the night the men were ordered to return to their quarters. Two further false alarms were to follow. By the 21st, Charles had grown sceptical of all incoming reports of Confederate troop movements, and rode out himself, accompanied by his staff, to reconnoitre the Swiss camp. Charles must have seen only a section of the Confederate encampment, for he subsequently ordered his army to return to camp once again, leaving only 2,000 archers and handgunners supported by 1,200 horse to man the 'Grünhag' in the belief that the Swiss had only sent a small relief column with the aim of drawing him away from the city. The following morning, as Charles had given up all thoughts of a battle, the Confederate and Allied commanders held a council of war at which it was decided not to attack the enemy frontally but to encircle him; they were conscious that the absence of such a contingency plan at Grandson had allowed the Burgundians to escape relatively unscathed.

The Vorhut, comprising 5,000 Bernese, Fribourger and Schwyzer under the command of Hans von Hallwyl, was to keep the enemy occupied with crossbow and handgun fire until the column had reached a position where a consolidated pike charge could break through the earthworks. The Swiss horse, under Renatus of Lorraine and the Duke von Thierstein, was to cover the left flank of the Vorhut and take up the fray with the opposing horse.



This, the oldest surviving standard of the Canton Zug, is known as the *Saubanner,* because of the pig which forms the main motif. In February 1477 a band of men from Zug and neighbouring districts broke out on a wild but short-lived campaign in the west of Switzerland in an attempt to reap some of the spoils of the Burgundian Wars. These marauders were known as *das torechte Leben* and the banner shown was their rallying point. The *Saubanner* bears a jester chasing a sow and piglets with a club and acorns as bait. In the top corner are *(from left to right)* the Zug coat of arms (colours white and blue), the arms of Küssnacht am Rigi, and a third bearing the Wissnacht family emblem—a butcher's axe. (Historisches Museum, Zug)

The massive Gewalthaufen of some 12,000 men (probably under the command of Hans Waldmann) was set back and to the left of the Vorhut; and was to follow in echelon formation; and similarly the Nachhut of a further 7,000 men would eventually sweep across to the south of the Burgundian camp in an attempt to cut off any possibility of retreat. Contingents from Neuchâtel and Le Landeron at the north-east of the lake were to stop any escape to the north.

After a brief reconnoitre a scouting party reported the 'Grünhag' to be thinly manned, and on the afternoon of the 22nd orders were given in the Confederate camp for the men to take up their positions in the respective columns. By the time the Swiss Vorhut had appeared from the Buggliwald woods, supported by the Austrian and the Lorraine horse, the rain which had been falling for two days suddenly stopped.

Behind the 'Grünhag' the Burgundian men-at-arms (including contingents of English archers) were ready for the impending assault, and the first wave of the Swiss Vorhut suffered heavy casualties under a concentrated fire of crossbow, longbow and light artillery. For a while the Swiss momentum was checked; but shrewd manoeuvring by the Schwyzer under the command of Landamman Dietrich bypassed the earthworks and turned the enemy's flank. Coupled with the volleys which the light culverin in the

Vorhut were now returning, this manoeuvre made way for the Swiss pike to charge home. Soon the Burgundian defences had been overrun and the Vorhut was storming on towards the Bois de Domingue.

With no time to organize his army for the counter-attack, Charles could only stand and observe the approaching Confederate van, which by this time no longer displayed the tight formation which had stormed the 'Grünhag' but had broken up as the momentum carried the Swiss down the slope. Those Burgundian units called in to support their retreating comrades were hopelessly caught in the impetus of the Confederate charge and swept aside. Charles had had no time to deploy his men effectively, and they were forced to engage the Swiss wherever they appeared instead of *en masse*. His original tactics had been rendered irrelevant in the space of a few moments, and the disorderly Burgundian units soon proved easy meat for the fast-approaching Gewalthaufen.

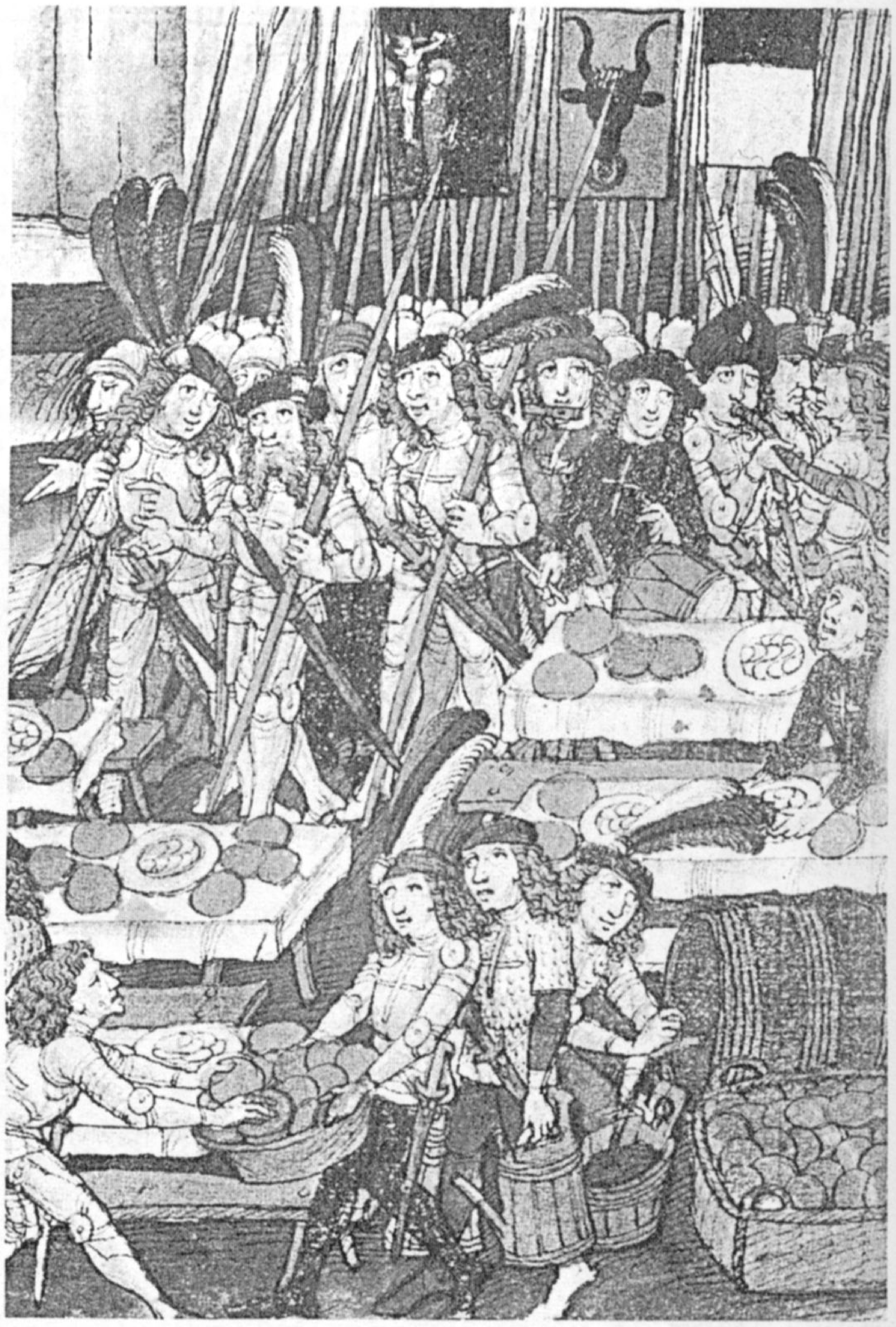
As at Grandson, panic soon gripped the Duke's men. Only the Burgundian men-at-arms put up a brave rearguard action against the horse of Austria and Lorraine, but they too were eventually routed by the Swiss pike.

Soon the Gewalthaufen and Nachhut had completed their manoeuvre, surging westwards to cut any Burgundian retreat to the south. At Greng and Faourg there were fierce pitched battles as Charles's men tried feverishly to force a retreat through the now complete Confederate ring. Only a few escaped. The remainder were mercilessly slaughtered or driven into the lake, where they drowned.

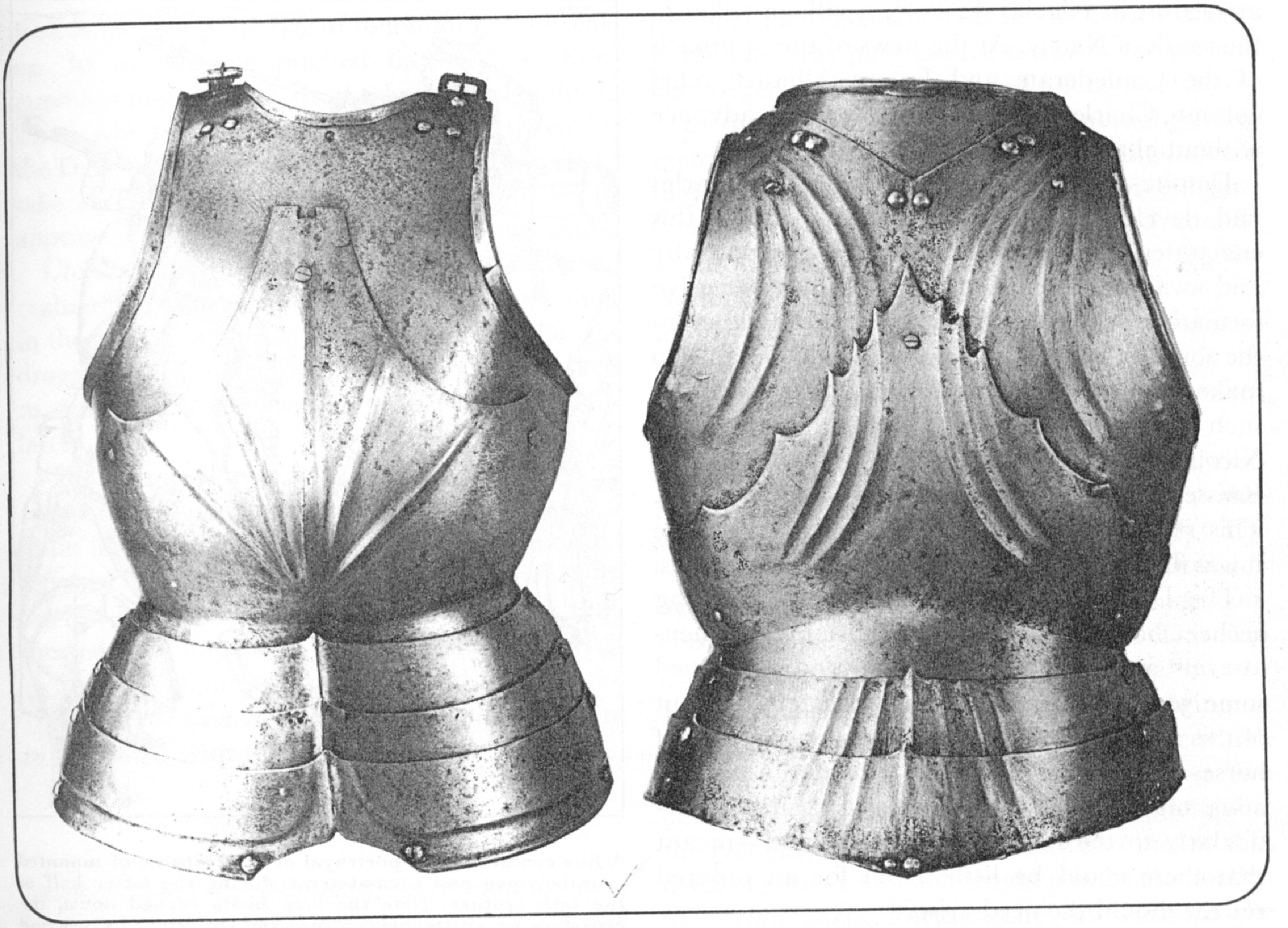
Meanwhile Bubenberg, who had been watching the course of the battle closely from the castle, had ordered a sortie from the West Gate of the city to engage and occupy the Milanese troops under Anton of Burgundy until the encirclement to the north could be completed.

The 4th Burgundian Corps under the Duke of Romont, positioned to the north-east of the city, had not been involved in the fray and soon beat a retreat via the north end of the lake as the outcome of the battle became clear. However, Romont too was soon beaten back by the Neuchâtel and Le Landelon contingents, and was forced to make a difficult and costly escape over the hills to the east of the lake.

By evening the battle had been lost and won. It is said that some 12,000 Burgundians lay dead, against only 410 Confederates. The majority of the Swiss dead were Bernese, who had met their fate at the 'Grünhag'. The booty was once again a handsome one, and the Swiss artillery park profited by the acquisition of a further 200 pieces. Morat is the *only* battle in which the echelon formation was employed by the Swiss.



The above illustration taken from the Chronicle of Berne represents an accurate depiction of armour, costume and detail at the time of the Burgundian Wars. The Berne Chronicle was commissioned by Adrian von Bubenberg and the Berne Council in 1474 and carried out by the historian and chronicler Diebold Schilling (1435–86). Schilling produced a monumental history in three volumes spanning the period between 1421 and 1480. The artist is unknown but the accuracy of the drawings, particularly in the third volume (1468–80), suggests that he had been present during the fighting, as had Schilling himself. However it must be stressed that the costume and armour depicted in the volumes covering the earlier battles reflect the later Burgundian modes in fashion at the time the chronicles were completed, and hence are a far less accurate representation of military attire at the beginning of the 15th century.



A Milanese breast and back plate dating from 1480. This is a type frequently illustrated in the Diebold Schilling and Benedikt Tschachtlan chronicles. Note the absence of any straps or fittings for tassets. The breast and back plates consisted of two sections, the upper part of which was cut off straight at waist level; a lower 'plackart' was attached to the breast plate by three vertical leather straps and buckles. At the front the plackart carries three upward-lapping plates—lames—which are joined by rivets and internal leathers. At the rear the lower back plate consists of two such lames. From c.1425 the upper and lower breast plate and the upper back plate were joined together by hinges down the left and straps and buckles down the right side. The most significant development in Milanese armour between c.1440 and 1455 was for the plackart to become more pointed and extended, so that by the end of the century it actually covered the whole of the upper breast plate. (Schweizerisches Landesmuseum, Zürich)

Nancy

Despite the devastating losses at Morat, Charles once again began to rebuild his shattered army. However, Morat had reduced the fears of Charles's potential enemies and a rebellion flared up, in which the Burgundian garrisons began to fall one by one into the hands of Duke Renatus.

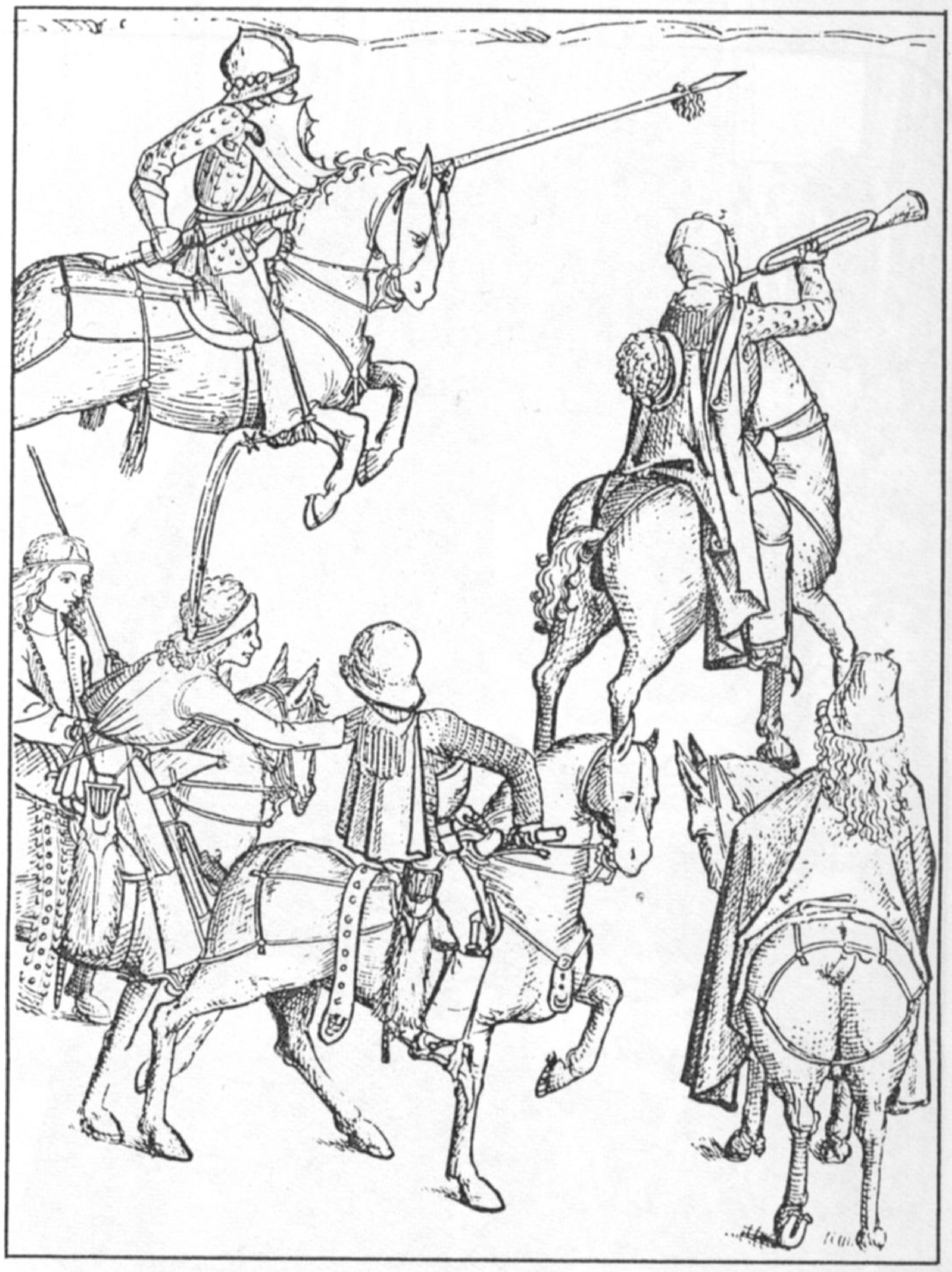
On 6 October 1476, the Burgundian garrison at Nancy surrendered to a force of Lorrainers. The fall of Nancy was a severe blow to Charles, and by 22 October he was before the city gates with an army of 12,000 men. Renatus now found himself in a desperate situation. The fortifications at Nancy had suffered during the siege, and many of the Duke's mercenaries had mutinied and deserted him. The Confederacy was not prepared to mobilize for Duke Renatus, however, and he was only permitted to recruit a private army on Swiss soil. This was an immediate success. Instead of the planned 6,000 men, 8,400 Swiss mercenaries were recruited as auxiliaries. These contingents included 1,500 men from Zürich under Hans Waldmann and 110 Bernese under Brandolf von Stein. The quality of the men and their equipment varied. Over 1,000 boys who had responded to the muster had to be sent back as being too young for battle. At Luneville, the mercenary force met up with troops from the Lower Alliance, which brought the complement up to 20,000 men, including some 3,000–4,000 horse. By 4 January the army had arrived at St Nicolas du Port, a village 10km to the south of Nancy. At the news of the approach of the Confederate and Lower Alliance relief column, Charles immediately ordered an advance without abandoning the siege.

Despite being heavily outnumbered, Charles had developed a special set of tactics for this encounter. His plan was to advance only partially and await the Confederate attack in a defensive formation at the narrowest part of the valley to the south of Nancy, so that he would be able to make effective use of his artillery. Charles found such a position on the road leading from St Nicolas du Port to Nancy at a point where the Ruisseau de Jarville flows into the River Meurthe. This stream provided a natural obstacle, since it was flanked on both sides by thick thorn bushes.

The Duke had drawn up his foot, including archers, handgunners, pike and dismounted men-at-arms, in a squared formation, and positioned some 30 pieces of artillery immediately in front of this square. On each flank stood two wings of horse. Although this position provided a natural advantage, the lack of manoeuvrability—particularly to the rear, due to marshland—meant that there could be little room for an ordered retreat should the need arise.

On the morning of 5 January the Swiss called a council of war at Jarville. Here it was decided not to engage Charles frontally but to take him in the flanks. To this end a sizeable forlorn hope was to advance as a decoy while the Vorhut (some 7,000 foot and 2,000 horse) would form the right wing of the pincer movement; the Gewalthaufen (4,000 pike, 3,000 halberdiers, 1,000 handgunners and 1,300 horse) were to swing round to the left through the wooded slopes. A weakened Nachhut consisting of 800 handgunners was to maintain contact with these two main Confederate columns, to act as a reinforcement should the need arise. At midday the Gewalthaufen commenced its difficult advance through the snow and ice over thickly wooded slopes on the right flank of the Burgundian square. At approximately 2pm they reached the slopes above the Burgundian army, which was still concealed by the mist and snow. At that moment the sun came out—a good sign for the Swiss, who immediately assembled in a wedge formation with gunners and pikemen forming the point, and began their advance down the slope towards the Burgundian right flank. On seeing this, Charles ordered his artillery to be trained on to the Swiss wedge, but the angle rendered their effect minimal. The Burgundian horse under de Lalain succeeded in checking the mounted Lorrainer and Alsatian troops, but the Confederate pike and gunners soon regained the momentum. Seeing the ineffectiveness of his artillery, Charles gave orders for his archers to be brought over from the left flank; but by the time they arrived the Confederate and Lorrainer Gewalthaufen had crashed into the Burgundian square. A few moments later the left flank gave way; the Vorhut soon repulsed the wing of horse and overran the artillery.

With both the artillery and horse gone there was no support left for the hopelessly outnumbered



A fine contemporary portrayal of the costume of mounted crossbowmen and men-at-arms during the latter half of the 15th century. Note the long boots turned down, the crossbow cover, the brigandines and the fringed capes and hoods worn under the helmets. Schilling often depicts the mounted trumpeters with banners hanging from their instruments. (Château de Grandson)

foot. Soon the square began to founder and break up. In the ensuing pitched battle 7,000 Burgundians met their death in a horrible slaughter. Those who managed to escape were betrayed by the Duke of Campobasso, whose main aim was to take as many prisoners as possible in order to appease the Confederates and save his own skin.

Charles tried to rally his men, but when he realized the hopelessness of the situation he joined in the general flight. In the ensuing chase he was dragged off his horse by his pursuers and hacked to death. His body was found in a ditch days later.

The Burgundian Wars illustrated a number of tactical developments. Firstly they demonstrated quite forcefully the redundancy of the mounted knight. Secondly, they revealed the *flexibility* of the Swiss battle formation; and thirdly, they showed how important the pike had become as the prime infantry weapon. By the end of the 15th century over two-thirds of the infantry were to be armed with the pike.

* * *

Organizational developments were soon to cause problems within the Confederation, for at the battle of Nancy the Swiss had already become semi-mercenaries; they were also winning a reputation for ill-discipline. After Nancy, several hundred men from Schwyz and Uri formed themselves into a band known as '*das torechte Leben*' and under a white banner bearing an idiot and a pig as emblems they marched on Berne to demand their share of the booty. Receiving no satisfaction they then proceeded—now 2,000 strong—to Geneva, where only the tactful diplomacy of Berne and the generosity of the Bishop of Geneva averted a civil war. Similarly at Dornach, in the Swabian War, the troops of Lucerne and Zug who had made a forced march to the battlefield arrived to find some 200 Bernese already stripping and looting the dead bodies. The Swiss tried to impose a strict military code, but punishments were often waived (as at Grandson, Morat and Dornach).

By 1481, some 6,000 Swiss mercenaries were in the pay of Louis XI, and in 1497 a nucleus of 100 was officially organized as the French king's personal bodyguard—'Garde de Cent Suisses'. Each man was paid twelve florins a month and was armed with a halberd and a long sword.

By the end of the century, the cantonal governments had realized that it was becoming increasingly difficult to prevent Swiss from enlisting under foreign princes as mercenaries. Gradually a distinction was made between the regular cantonal contingents who were hired out to foreign princes, swore to obey the Confederate military ordinances and were paid directly by the cantons, and the free bands who organized themselves.

The motivation to hire out military services gained further impetus from the military successes during the Swabian War of 1499. The result of the decisive Swiss victory at Dornach over Maximilian's troops was the ultimate conclusion of the wars of independence. This was cemented in 1501 and 1513 as Basle, Schaffhausen and Appenzell joined the Confederation, bringing thirteen cantons together in a political bloc which was to remain unchanged for a further two centuries. This had grave military implications; the recognition of the Confederation meant that Swiss energies could and would now be channelled to foreign parts. Furthermore, at Dornach the Swiss met for the first time the *Landsknechte*—well-drilled infantry trained in the use of the pike and instilled with a burning hatred for the Confederate.* The emulation of the Swiss by Maximilian's Landsknechte was only the first stage in the development of tactical organizations capable of responding to the supremacy of the Swiss. As the Italian Wars were to show, the pike tactics of the Swiss could become stagnant as the Spanish sword and buckler, the Stradiot light cavalry and the German arquebusier emerged as the military answers to what undoubtedly had been 'the most formidable infantry in the world'.

The Plates

It is extremely difficult to reconstruct the details of the dress of the common footsoldier from contemporary Swiss sources. We have taken costume

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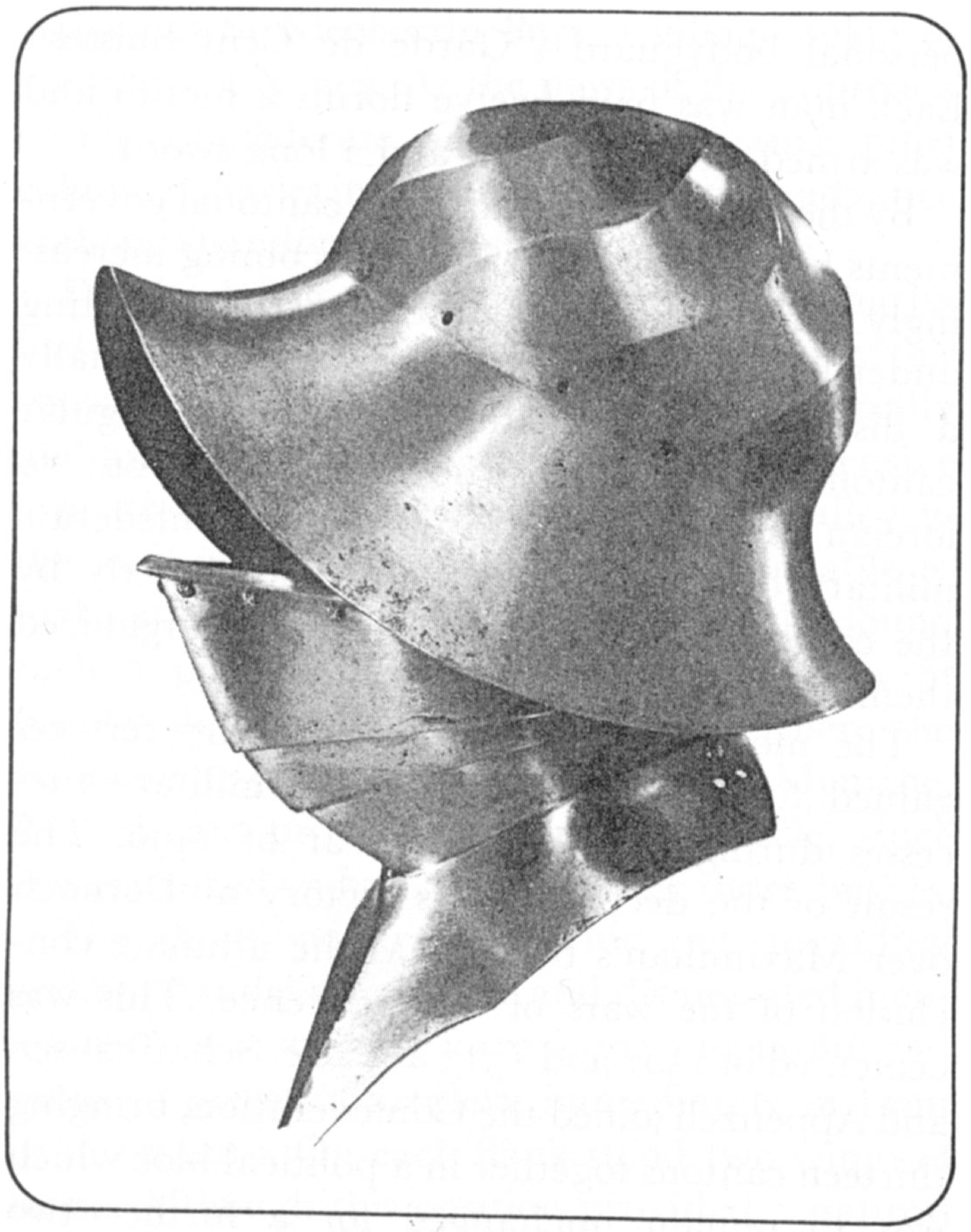
*See my earlier title in the Men-at-Arms series, *The Landsknechts*.



A chapel de fer with bevor, probably Burgundian. Fluted helmet bowls and exotic shapes seem to have been popular among the Burgundians. The missing studs held the lining in the helmet. (Metropolitan Museum of Art, New York)

details from other European sources where necessary. There seems to have been a considerable intermixing of styles, although nearly everything we have shown is illustrated clearly or suggested in the chronicles. Both the Schilling and Tschachtlan chronicles tend to depict the Swiss footsoldiers a little more fashionably dressed than they probably were.

A: Costume during the early period, Morgarten–Näfels

A1: Crossbowman, Laupen and Sempach. He is shown here in a kettlehat with cut-outs in the brim for vision. The helmet is worn securely buckled over his buttoned hood. The costume consists of simple woollen hose and a smock covered by a short-sleeved mail shirt. The hook on the strap around his waist is for loading the crossbow. With his foot in the stirrup the crossbowman bent down and placed the hook under the bowstring, and then straightened up, thus spanning his weapon. His hose, at this time, consist of separate legs.

A2: Pikeman wearing a kettlehat of simple shape tied over his hood. The smock is woollen. Note the Swiss knife and axe on his belt. In the heat he has rolled down his hose to his knees. Note the short pike.

A3: This figure is based on a sculpture of the Basle Levies, *c.*1390, and is shown wearing a bascinet, mail aventail, a padded coat and metal gauntlets. Padded coats were common during this early period. The *aketon*—a shirt-like garment—was made of buckram stuffed with cotton and stitched longitudinally, forming a rigid but by no means awkward light protection. The *gambeson*—another type of padded coat—was made of coarse linen stuffed with flax or rags, and quilted to keep the stuffing in place. This had short, wide sleeves or was sleeveless, and was often worn with a wide, stiff collar as a waistcoat.

A4: Back view of simple foot costume. Note the metal skull-cap and the axe for field works. The woollen hose were worn laced with 'points' to the doublet. Contrary to popular belief the woollen cloth often had considerable elasticity, but contemporary illustrations of labourers at work do show the hose worn with the 'points' at the rear loosened or unfastened completely. As points were very apt to snap, common footsoldiers tended to use only a few, especially at the back, or none at all, and tended to roll down their hose to below the knee. Sometimes short hose gartered below the knee were also worn, and it was not uncommon for footsoldiers to fight barefooted (as at Stoss).

A5: Group of common soldiers with various primitive halberd shapes. Note the Banner of Glarus carried at Näfels, 1388.

B and C: Banners and Fähnlein

The various banners and flags illustrated here are mostly taken from photographs of the originals, an extraordinary number of which are preserved in Swiss collections. We have only been able to make a small selection. The plates are not to scale. It must be borne in mind that heraldic painting varied enormously during the period in question. Designs were not as stylized or as 'hard edged' as is common in more recent heraldry, and they tended to vary with the skills or ideas of the embroiderer or artist. Hence there are many bulls, bears and lions adorning banners and shields which may vary slightly in design. Generally, it can be said that as the 15th century progressed so the designs and materials used in banners and flags became more elaborate and rich.

(1) Hauptbanner, Zürich, carried during the Burgundian Wars.

(2) Landesbanner of Schwyz. A plain red banner was carried at Sempach and Morgarten (the originals still exist). A small crucifixion scene was embroidered in the upper corner of the banner near the staff. This flag was carried at Sundgau, Waldshut, Grandson and Murten. The chronicles reveal that it was customary for the Schwyzer to carry a second standard bearing the white cross when campaigning in foreign parts. The first record of the Schwyzer Banner bearing a small white cross in the top left-hand corner in place of the crucifixion dates from 1475, during the march on Basle.

(3) Obwalden, Burgundian Wars.

(4) Fribourg, 1410, and Burgundian Wars.

(5) Winterthur, Stadtbanner, 1405, captured by the Appenzeller at the battle of Stoss in 1405.

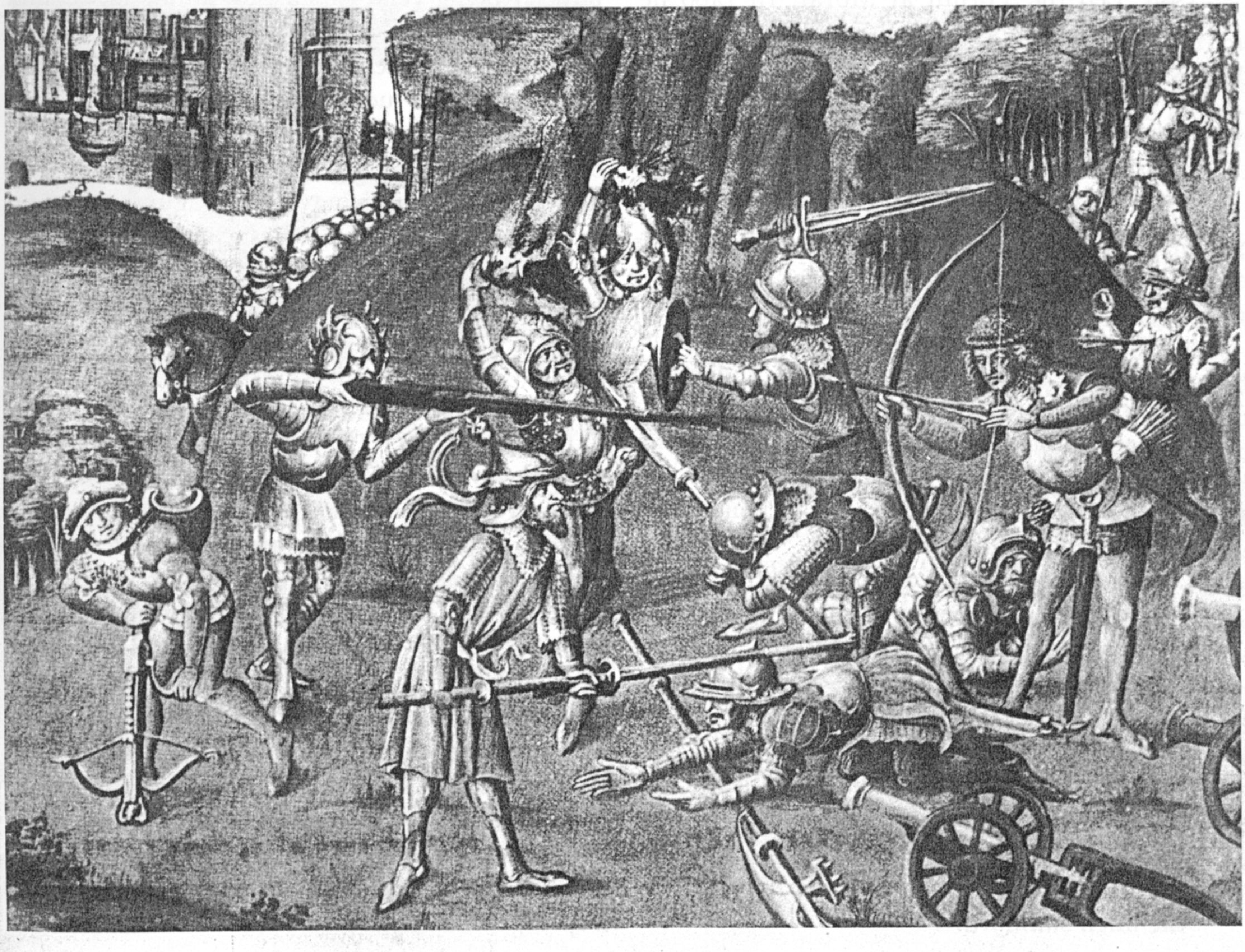
(6) Nidwalden Fähnlein, carried at Sempach.

(7) Banner of Thun, carried at Morat, 1476. Prior to the battle the banner bore a black star. Because of the bravery of the Thun contingent in the Confederate Vorhut the Banner star was changed to gold after the battle. Note the streamer.

(8) Banner of Thun, 1400 (the originals of the two Thun banners hang in the city castle today).

(9) Zug banner (after Schilling).

Contemporary painting of Burgundian troops in action, *c.*1470. Note in particular the crossbowman loading in the left foreground, the handgunner immediately behind him, and the 'bombardiers' in the centre, with grenades which were thrown with both hands. (Château de Grandson)



(10) Zürich banner (after Schilling).

(11) Solothurn banner (after Schilling).

(12) Lucerne banner. The original, carried at Morat, still exists.

(13) Biel (after Schilling). A surviving Stadtbanner has black straight-topped axes with white blade edges, shaft collars and tips.

(14) Banner of Basle state.

(15) Unterwalden banner (after Schilling).

(16) Arms of Rudolph von Erlach, who commanded the Swiss army at Laupen.

(17) Arms of von Bubenberg. Adrian von Bubenberg (1431–79), responsible perhaps more than anyone else for the Confederate victory at Morat through his foresight and stubborn resistance during the siege of the city by Charles's army. Von Bubenberg was joint commander with von Diesbach at Bellinzona, 1478.

(18) Arms of Hans von Hallwyl (1433–1504), one of the Berne commanding officers at Grandson. Led the Vorhut at Morat. In 1480 he joined the service of the French king Louis XI. Commanded a contingent in the Swabian Wars, 1499.

(19) Zürich Schützenfahne, *c.*1512, with a gun on the reverse side.

(20) Arms of Graf von Kyburg (1466–70).

(21) Arms of Graf von Valengin, fought against the Swiss at Laupen.

(22) Arms of Niklaus von Diesbach (1442–1517), member of the Berne council, took part in the Sundgau campaign of 1468 and commanded Confederate contingents at Grandson and Morat. In 1478 had joint command of the Swiss force at Bellinzona.

(23) Arms of Peter von Greyerz, an old enemy of Berne, ally at Grandson.

(24) Arms of the Graf von Neuenburg (Neuchâtel) *c.*1350. Neuenburg fought against the Swiss at Laupen.

(25) Rennfähnlein of the City of Bremgarten (second half of the 15th century).

(26) Appenzeller Fähnlein.

(27) Fähnlein of the city of Baden, 15th century.

(28) Nidwalden Fähnlein, 15th century.

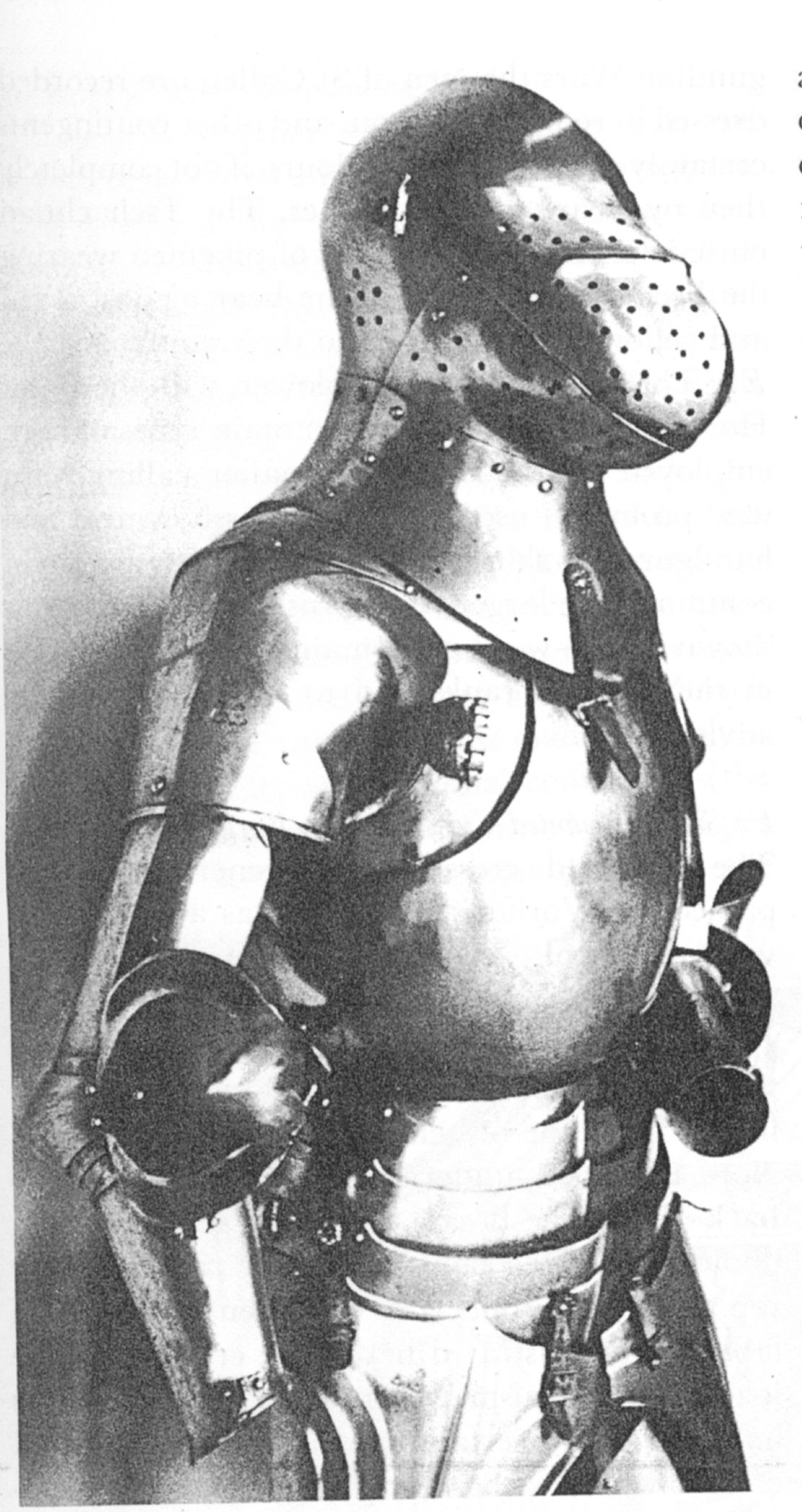
(29) Basler Auszugsfähnlein, Burgundian Wars. Both motif and cross have been painted on the linen standard.

D: Swiss Handgunners, Burgundian Wars

The tactical rôle of the handgun was initially limited in Swiss service. In the Zürich roll call of 1443, only 61 handgunners were conscripted for the Schützenfähnlein of 536 men, the remaining 475 being armed with crossbows. By the Burgundian Wars, the proportion had changed to about half and half handgunners and crossbowmen, although there seems to have been a general difficulty in maintaining a good proportion of firepower in the Confederate armies. Berne, for example, expressed her annoyance during the Swabian Wars that many of her crossbowmen and handgunners had entered the field with halberds and pikes, and Zürich was forced to order all those men capable of handling guns to arm themselves with them.

The unpopularity of the handgun probably derived from the difficulty which gunners experienced in handling such weapons. In battle the rate of fire must have been dreadfully slow, loose powder being very difficult to handle in wet and windy conditions (the earliest form of cartridge was not introduced until late into the 15th century). With luck and kind weather a handgunner would probably have been able to manage one shot a minute.

The method of firing the handgun appears to have differed, as the Schilling chronicles testify. Early handguns were held under the arm and fired by lighting the touch hole with the glowing tip of a match. The earliest record of the introduction of a serpentine (the S-shaped trigger mechanism to which the match was attached) dates from *c.*1411. The Schilling chronicles do not, however, show any trigger mechanism. The position in which some of the handgunners are holding their weapons (see reconstructions in the colour plates) i.e. with the butt of the gun rested *on* the shoulder instead of *against* it, tends to suggest that accurate firing could not have been possible without a serpentine mechanism holding the match—since the right hand would have been required to steady the aim if the butt was rested on the shoulder. Towards the end of the 15th century a push-button release was also in use. Instead of a trigger a button on the lock plate could be pressed inward with the thumb, releasing a spring which activated the match.



Milanese armour allegedly captured at Grandson and now in the Historisches Museum in Berne. Milan was probably regarded by the Swiss as the centre of armour production in Europe, although the German Gothic style began to compete with the lighter Milanese 'white armour' during the latter half of the 15th century. Apart from the distinctive features of the breast plate which have already been discussed, 'white armour' was characterized by large plate defence on the bridle arm, enveloping reinforcements on the elbows, and increased protection to the shoulders in the form of large pauldrons. After 1425 the upper edges of the pauldrons were turned up to protect the neck and ceased to be angular at the back, eventually overlapping like a pair of wings. During the mid-15th century the tassets grew longer and roughly triangular in shape. (G. A. Embleton)

Gunners' kit consisted, as far as can be ascertained, of a small bag and powder flask. Lead *boules* were used for shot, and it was not uncommon for handgunners to carry moulds with them on campaign. At Grandson, the Swiss made a sortie to the outlying hamlets at Yverdon and collected pewter plates which they could melt down for shot. Schilling shows gunners using ramrods, although it is not known where these were carried.

Bernese handgunners and crossbowmen favoured a small fighting axe known as the *Mordaxt*. This was often used for the construction of earthworks and palisades (so-called *Letzinen*). As can be seen from the Zürich contingent of 1443 the majority of handgunners were recruited from the city guilds, and hence were likely to be better dressed than their counterparts in the rear ranks of pike and halberd. Handgunners generally wore little armour as they needed to remain mobile. The plate shows a variety of headgear, ranging from the kettle hat with slits (far left) to the turban (foreground) and the *cervelière* (shown here far right) covered with fabric and bearing the white Swiss cross. Separate hose were still worn during the 15th century, but were gradually replaced by one-piece hose, which were higher waisted and bore a separate flap or codpiece. Note the buckled boots (reconstructed from illustrations in Berne Art Gallery). The red Schützenfahne is commonly shown carried alongside the Bernese.

E: Halberdiers, Burgundian Wars

It is difficult to be precise about costume during the 15th century. There appears to have been no Swiss style as such, with German, Burgundian and Italian fashions being the main influences. The poorest folk are very seldom illustrated, and where they are there is little difference between the above countries. Obviously fashions would have slowly 'filtered', and would have been copied by those who could afford to do so. Clothes were made to last, and older folk would generally wear the styles of their youth. New fashions would spread slowly, and only the rich and interested would follow the styles of the various courts. No doubt there were many regional styles that changed slowly, but we have little evidence of these. Likewise, winter and travelling clothes, boots, etc. are not usually illustrated. There was no doubt enormous variety, getting plainer and simpler the further down the social scale. The poor wore some sort of smock or simple doublet, woollen hose, and often a hood and shoes usually less pointed and more shapeless than their betters.

E1: An armoured officer, his armour covered with a slashed coat. During the latter half of the 15th century (1450–85) the Burgundian influence on fashion was at its height, and the padded doublet, fitting closely at the trunk, was commonly worn by officers and common footsoldiers alike, although the extent of padding, ornamentation and richness of cloth varied enormously. Note the gathering at the back and the slashing at the elbows. Slashing became fashionable from 1480. The sallet is decorated with feathers and a hanging scarf.

E2, E3: Swiss footsoldiers from a rural contingent. Both are wearing simple clothing. The figure to the rear is shown wearing a head band and a mail shirt under his coat. The halberdier in the foreground is shown with a turban-style headgear and feather. Both are carrying long swords and the distinctive Swiss dagger.

E4: This figure is dressed as the majority of figures in Tschachtlan's chronicle. Note the absence of armour and the parti-coloured dress. The halberdier is wearing a sallet.

All the figures are shown wearing a small white cross. The first record of the white Swiss cross dates from the battle of Laupen, 1339. This appears to have been the major field recognition sign of the Swiss, and was fashioned from white cloth and sewn onto the hose or doublet. Later the cross appeared stamped on the halberd, the dagger and on a ribbon worn diagonally across the chest. The Schilling chronicles show crosses daubed on the breast and back plates of armour in black, red or blue. The choice of dark colours may have been artistic licence, but it is reasonable to assume that a dark cross would have been painted on bright armour to facilitate recognition. Generally the Swiss were distinguishable from the Burgundians by the fact that the latter used the diagonal cross of St Andrew as a recognition sign.

It is uncertain as to what extent cantonal colours were worn. The chronicles sometimes show them but not in any uniform way. Records show that in 1443, 400 Fribourger marched on Bresse, with Berne dressed in the cantonal colours of black and white. Similarly during the Burgundian Wars the men of St Gallen are recorded dressed in red at Grandson, and other contingents certainly displayed their colours, if not completely then by wearing dyed plumes. The Tschachtlan chronicles show illustrations of pikemen wearing the Berne coat of arms of the bear against a red and yellow shield sewn on to their doublets.

E5: The 'horned' Uri hornblower, with the Great Horn of Uri. There were two main types of horn employed by the Swiss. A smaller calling horn was probably used to rally crossbowmen and handgunners skirmishing in front of the main columns. The larger war horns or *Harsthörner*—as shown here—were used mainly to create panic in the enemy's ranks and to sound the general advance.

F: Swiss Mounted Crossbowmen, Burgundian Wars

The mounted crossbowmen generally accompanied the Vorhut as scouts or as a mobile advanced patrol. They usually fought on foot, rather like dragoons.

F1: This dismounted crossbowman is shown wearing a Milanese-type sallet with the visor lifted. This type of helmet was made for export. Note the hood underneath. He is wearing no back plate. The breast plate (see accompanying photo) shows the pointed *plackart* riveted to the top plate. The upper half was often covered with fabric, as is illustrated here. The cranequin-type loading mechanism was preferred by the Swiss and was most certainly used by the mounted crossbowmen as the more simple device in comparison with the windlass which was generally used by the Burgundian foot crossbowmen.

F2: A mounted crossbowman. Note the scarf tied round the sallet—numerous examples are to be found in the Schilling and German chronicles. The crossbow cover, usually leather, was necessary to prevent the cord from getting wet. Mounted men-at-arms during this period are illustrated wearing high leather boots, usually worn turned down.

F3: Mounted crossbowmen in cloak. He is wearing a sallet and bevor with no plumes.

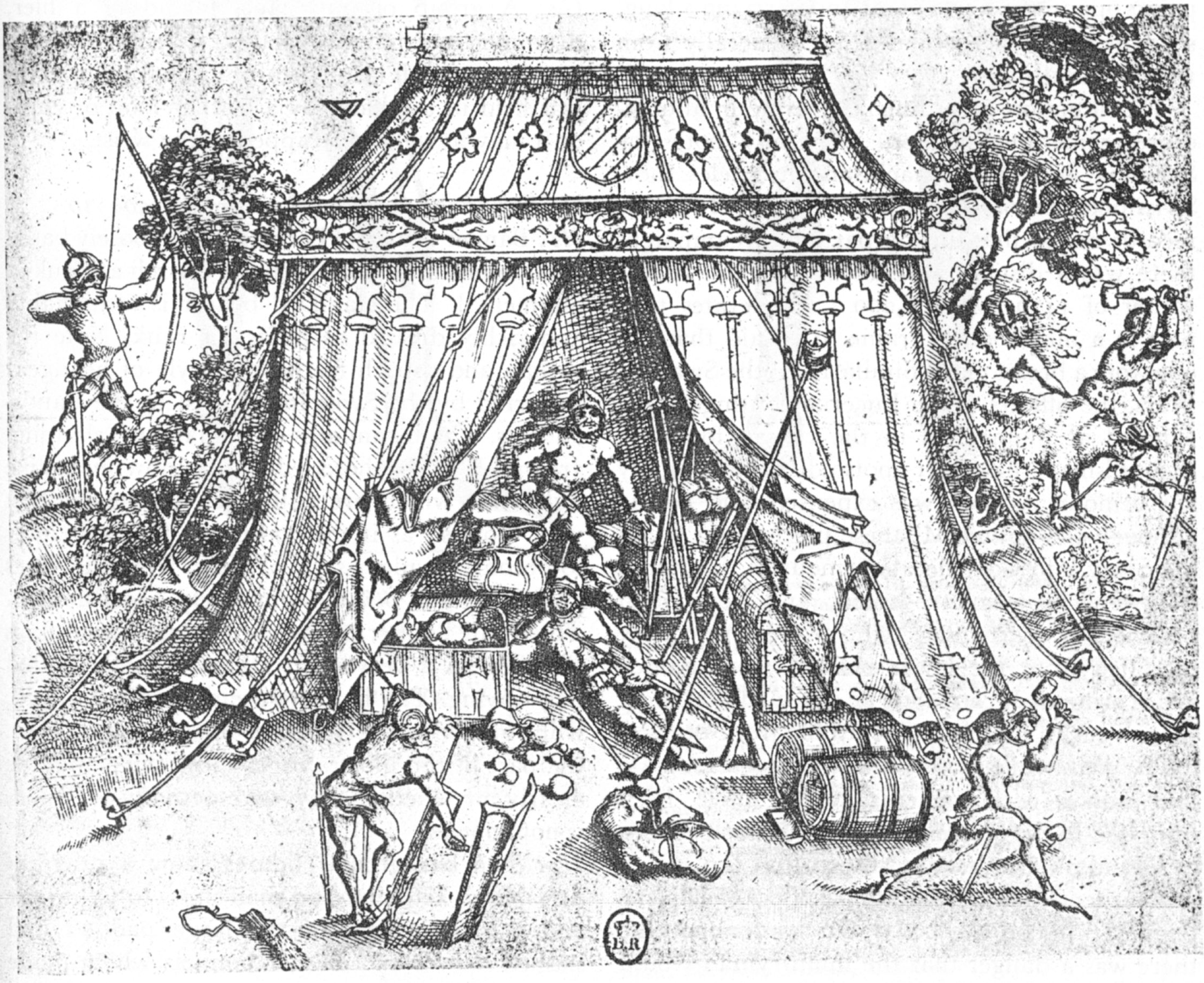
F4: A dead Burgundian archer (from Schilling) showing both a high-collared padded jacket and a large cloth bag for arrows.

G: Swiss pikemen, Burgundian Wars

Contrary to popular belief, the pike was not especially favoured amongst the Swiss during the early period of the 15th century in particular. First records of its use in great number date back to 1425; doubtless this was in response to the shattering experience at Arbedo. The pike did not in fact originate in Switzerland, but in Italy (in 1327 the citizens of Turin were first commissioned to make eighteen-foot pikes). It is with the Lucerne contingent that the pike makes its first appearance among the Swiss. There seems to have been some caution on the part of the Confederates in establishing the pike as the principal staff weapon. Detailed military lists from Zürich dated 1443 show that the pikes made up only a quarter of the city and cantonal contingent (the Lucerne contingent had been armed with 38 per cent pikes). Certainly as an individual arm the pike was an unmanageable weapon and a hindrance to mobility. During the march or advance the pike was either held about two feet from the point and trailed along the ground, or carried in bundles in the train. This was due to the fact that the pike vibrated considerably which caused discomfort when held on the shoulder during a march.

Considerable training must have been required for its effective use, for it was only in phalanx formation that the weapon could realize its devastating potential. Historical reconstructions at Grandson Castle have shown that rigorous discipline and skill must have been required to master the pike in close formation, as it has been

A fine drawing of a Burgundian camp scene, *c*.1460. Note the crossbowman loading his weapon with a windlass mechanism in the foreground: also the camp lantern in front of the tent, and the equipment and containers inside the tent. (Château de Grandson)



found that in the front four ranks of a square there was a danger that the pike heads of the fourth rank might pierce the necks of the men in the front rank. The pike measured on average 5m, weighed about 5lbs and was composed of two parts; a haft of ash, sometimes pointed at the base, and a head which took on either a dagger, 'frog's mouth' or 'leaf' shape. The construction of pike shafts became a special craft in Switzerland by the latter half of the 15th century, as the pike became a crucial weapon in the Confederates' tactical formation, and the cities usually appointed a special official known as the *Baumeister* to control the quality of such arms.

It must be noted that other staff weapons attributed to the Swiss, notably the *Mordaxt*—a type of halberd with a long spike typical of the Zürich region—and the Lucerne hammer—a type of pole-axe with a hammer head of four points opposite a single point and carrying a long, straight spike on the end—date generally from the 16th century.

The situation regarding foot armour also requires some qualification. Generally both the Schilling and the Tschachtlan chronicles show Swiss pikemen *en masse* in full armour. However, records reveal that during particular campaigns there was a distinct absence of armour. In the winter of 1476, when 6,000 Confederates took part in a march on Lorraine, it is said that not one wore a breast plate. Similarly, in the Swabian Wars, the officers of the Lucerne contingent encamped at Blumenfeld in the Hegau found to their dismay that their footsoldiers had barely any armour. Armour was expensive and heavy, although the lighter Milanese pieces soon found their way into Confederate armouries. Captured sets were kept and re-issued, and very often pikemen in particular (who were principally recruited from the lower classes) wore motley sets of armour. It can safely be assumed that those pikemen with full sets made up the front ranks of the Haufen, while those wearing only breast plate and minor accoutrements would have been relegated to the centre and rear. Reconstructions at Grandson Castle have shown that the suit of armour tended to exaggerate the effect of extreme temperatures on the body. On winter marches there was a danger that the infantryman would lose too much body heat in the cold armour. This probably explains why Schilling recommended the consumption of a 'nutshell' of *schnapps* to his contemporaries when thirsty, instead of draughts of water, to prevent excess loss of body heat. These problems and cures were established during a 200km reconstructed winter march from Lucerne to Grandson by the curator and technical assistants at Grandson Castle.

G1: This kneeling pikeman is shown wearing a mail shirt under a breast plate and *cervelière*, with disc-shaped ear protectors.

G2: The standing figure in the centre of the plate is wearing extensive plate protection over a mail shirt. Note the dagger on the right hip and the kettlehat with eye slits. The brown cloth indicates the hood which was worn over the mail but under the armour. Note also the armoured gauntlets.

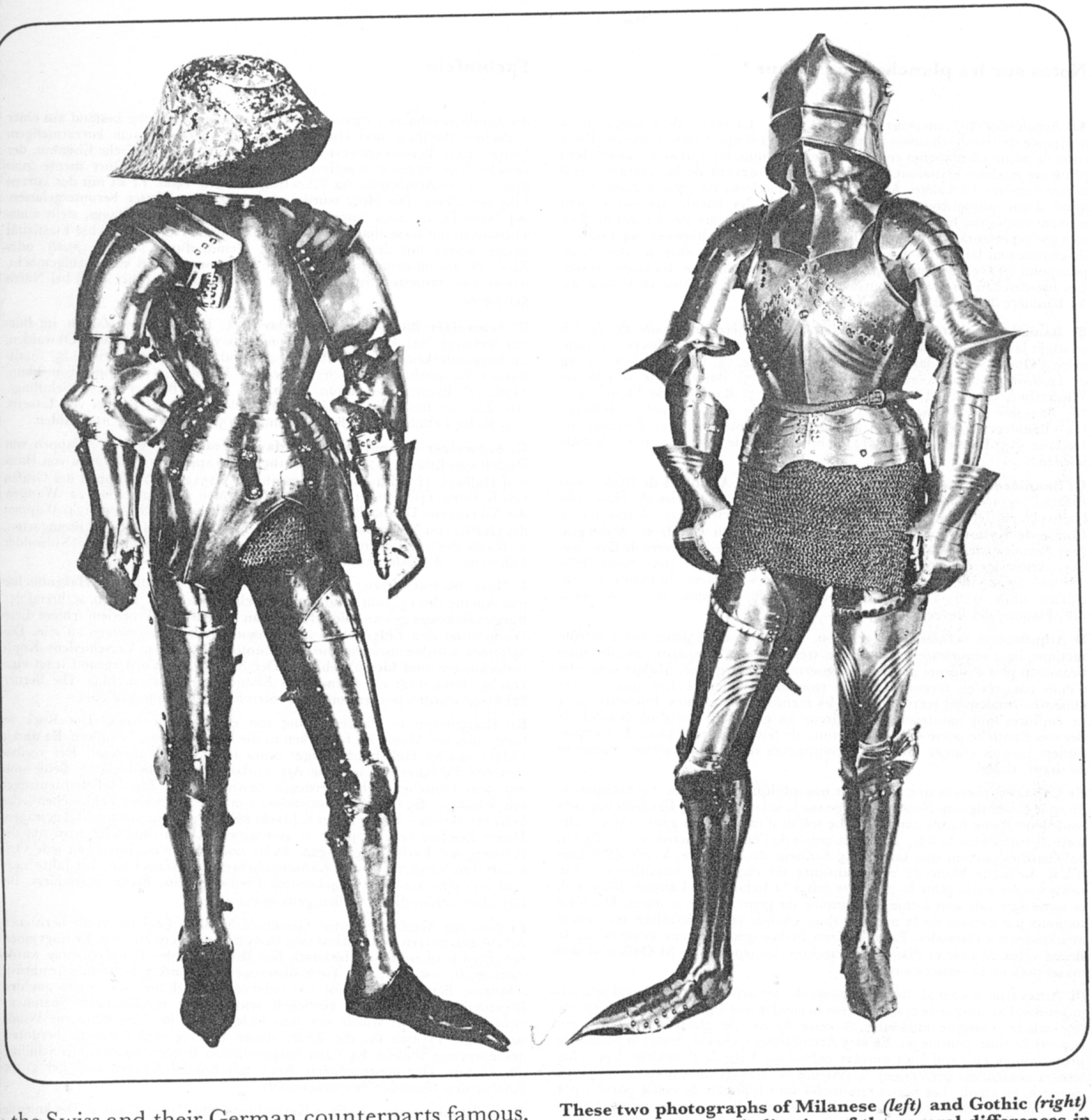
G3: Pikeman wearing cantonal colours.

G4: A group of musicians, including a fifer, drummer and bagpipe player. The drummer is carrying a small instrument in his left hand. This was held in the hand by a leather loop or cord, or it may have been strapped to the wrist.

H: Berne flag-bearer, and Swiss troops 1500–10

H1: Banner bearer of Berne, *c.*1510, loosely based on a stained glass picture in the church at Lenk in Simmental. The standard bearer is fashionably and richly dressed as befits his rank. Note the turban and ostrich feathers, a style of headgear preferred by the Swiss in contrast to the Landsknechts. The beginnings of the famous 'slashing' are visible on his hose, which are now more like tights but which are still laced to the doublet with 'points', as is the codpiece. This was later to become a vulgar style of dress. Note the shoes are no longer pointed but fairly broad-footed. The small banner of Berne, in rich material, is attached to a very short staff which facilitated flag-waving. The banners are often shown rigid, while others 'sway'. Whether this was a device on the part of the illustrator to show the standards clearly, or whether they were actually stiffened, is not known.

H2: The background figures show a range of dress, from kettlehat and mail shirt, to tight hose and the beginnings of the large padded and slashed sleeves and feather bonnets which made the Swiss and their German counterparts famous. Sometimes bonnets were worn *over* steel caps, or tied on the head with ribbons. The drawings of Nicholas Schradin, *c.*1500, and the Schodeler Chronicle, *c.*1515, show many interesting details. It is interesting to note that the Swiss cross generally became broader during this later period.



These two photographs of Milanese *(left)* and Gothic *(right)* armours give some indication of the general differences in style. Whereas the Milanese armour has a more rounded, plain and functional appearance, the Gothic style abounds, in this particular example, in ornament and exaggeration. Note the pointed sabatons and coutere. The gauntlets had characteristically pointed cuffs. The breast plate of the Gothic armour was often made of two parts, the lower one overlapping the upper and rising to a point in the centre; and the back plate was often laminated and the edges of the plates cusped. The marks of the Nuremberg and Augsburg armourers were the applied borders of gilt brass, and plate surfaces often broken by ripplings (as in the cuisses above) and fan-like flutings. These—remarkably—did nothing to weaken the strength of the plate. The Milanese armour (1487) is shown here with a black sallet covered in a painted design. The helmet, though contemporary, is not associated. (Waffensammlung, Vienna) For a more detailed survey of armour during this period we would refer readers to Claude Blair, *European Armour,* London.

Notes sur les planches en couleur

A1 Arbalétrier aux environs de 1300 à 1400. La tenue de l'époque était composée de bas-de-chausses simples en laine et d'une blouse couverte d'une cotte de mailles à manches courtes. Notez le casque typiquement suisse, dont plusieurs modèles existaient. Le crochet sur le devant de la ceinture sert à armer (tendre) l'arbalète. **A2** Piquier, aux environs de 1300 à 1400. Il est armé d'une pique courte. Par temps chaud, les bas-de-chausses étaient souvent roulés sur les genoux. **A3** D'après une sculpture des Levées de Bâle en 1390 représentant un soldat d'infanterie portant un bassinet. **A4** Les bas-de-chausses en laine, qui avaient une certaine élasticité, étaient attachés au pourpoint ou éventuellement à la chemise par des points ou des lacets croisés. Les bas-de-chausses étaient souvent ouverts derrière, comme ils le sont ici. **A5** Bannière de Glarus portée à Näfels en 1388.

B: Bannières et étendards suisses (1) Bannière principale de Zürich pendant la guerre de Bourgogne. (2) Bannière cantonale de Schwyz. (3) Bannière d'Obwalden pendant la guerre de Bourgogne. (4) Bannière de Fribourg en 1410 et pendant la guerre de Bourgogne. (5) Bannière de la ville de Winterthur, 1405. (6) Flamme de Nidwalden. (7) Bannière de Thun, 1476. (8) Bannière de Thun, 1400. (9) Bannière de Zug (d'après Schilling). (10) Bannière de Zürich. (11) Bannière de Solothurn. (12) Bannière de Lucerne. (13) Flamme de Biel. (14) Bannière de Bâle. (15) Bannière d'Unterwalden.

C: Bannières et étendards suisses (suite) (16) Armoiries de Rudolf von Erlach. (17) Armoiries de von Bubenberger. (18) Armoiries de Hans von Hallwyl. (19) Drapeau de tireur de Zürich, 1512 environ. (20) Armoiries du Comte de Kyburg, 1466 à 1472. (21) Armoiries du Comte de Valengin. (22) Armoiries de Niklaus von Diesbach. (23) Armoiries de Pierre de Gruyère. (24) Armoiries du Comte de Neuchâtel, 1350 environ. (25) *Rennfähnlein* (fanion) de la ville de Bremgarten au cours des derniers cinquante ans du 15ième siècle. (26) Flamme d'Appenzell. (27) Flamme de Nidwalden. (28) Flamme des Levées de Bâle.

D Arquebusiers bernois, 1470 environ. Au début du 15ième siècle le rôle tactique de l'arquebuse était encore très limité. Cette arme est devenue beaucoup plus courante pendant les guerres de Bourgogne. Malgré cela, elle n'était pas très en faveur parmi les troupes confédérées. Les arquebusiers étaient normalement recrutés parmi les membres des guildes. Plusieurs types de coiffures sont montrées ici. Le tireur au gros-plan porte un bonnet; le Bernois à gauche porte un heaume muni de fentes pour les yeux. Les arquebusiers bernois étaient toujours accompagnés d'un *Schützenfahne* (bannière de tireur) rouge.

E1 Capitaine portant une armure et une tunique à taillades. La tunique est du style bourguignon. Notez l'écharpe sur la salade. **E2 et 3** Des hallebardiers confédérés d'une bande cantonale. Le soldat d'infanterie à gauche porte une sorte de turban sur la tête. Tous sont armés de l'épée distinctive suisse. **E4** Un hallebardier portant une salade. **E5** Sonneur du *Harsthorn*, le cor de guerre d'Uri. Le signe blanc de reconnaissance du champ de bataille—la croix suisse—a été porté pour la première fois à la bataille de Laupen. Plus tard, ce signe apparaît sous forme d'estampille ou peint sur les armures. On n'est toujours pas certain de la manière dont chaque région habillait ses soldats aux couleurs cantonales. En 1443, 400 Fribourgeois se sont avancés sur la Bresse vêtus de noir et blanc. A Grandson, les troupes de St Gallen se sont toutes présentées vêtues de rouge.

F1 Arbalétrier à cheval. En règle générale, les arbalétriers à cheval accompagnaient l'avant-garde et se battaient normalement à pied. Cet homme porte une salade d'origine milanaise. A cette époque le plastron était souvent couvert de tissu, comme ici. **F2 et 3** Arbalétriers à cheval. Notez la housse de protection en cuir qui était souvent enfilée sur l'arc de l'arbalète. Les arbalétriers confédérés préféraient le système de serrage mécanique, appelé le *cranequin*, au treuil. Les bottes retournées sont typiques de celles portées par les troupes à cheval de cette époque. **F4** Un archer bourguignon mort (d'après Schilling). Notez sa veste matelassée à col haut, et le grand carquois.

G1 et 2 Piquier, 1470 environ, portant une cotte de mailles et une armure à plates. Le soldat à genoux porte une cervelière ayant des pattes pour la protection des oreilles et le piquier qui se tient debout porte un casque en fer muni de fentes pour les yeux. **G3** Piquier portant des couleurs cantonales. La pique n'est devenue l'arme principale des troupes confédérées qu'après la bataille d'Arbedo en 1425. Ce bâton faisait 5 mètres de long. En règle générale, les hommes des premiers rangs dans l'ordre de bataille portaient une armure complète pour renforcer la puissance de leur attaque contre les troupes ennemies. **G4** Musiciens: fifre, tambour et cornemuseur.

H1 Porte-étendard bernois, 1510 environ, d'après un vitrail dans une église à Lenk dans le Simmental. Le porte-étendard porte les habits qui conviennent à son rang. Le turban à plumes d'autruche est typique du genre de coiffures portées par les troupes confédérées à cette époque. A cette époque, les taillades—qui avaient été inventées en Italie du Nord—étaient à la mode. **H2** Divers soldats d'infanterie confédérés portant la tenue de combat de l'époque. La croix suisse telle qu'elle est montrée ici est devenue la marque distinctive principale des troupes confédérées sur le champ de bataille, par opposition à la croix diagonale de Saint André portée par les *Landsknechte* de Maximilien, à Dornach par exemple.

Farbtafeln

A1 Armbrustschütze *c.*1300–1400. Die damalige Kleidung bestand aus einer einfachen Wollhose und einem Kittel mit übergezogenem kurzärmeligem Kettenhemd. Bemerkenswert ist der für die Schweizer typische Eisenhut, der verschiedene Formen annahm. Der Haken vorne am Gurt diente zum Spannen des Armbrusts. **A2** Pikenträger *c.*1300–1400. Er ist mit der kurzen Pike bewaffnet. Die Hose wurde oft bei heissem Wetter heruntergelassen. **A3** Diese Figur, nach einer Plastik des 1390er Basler Auszugs, stellt einen Fussknecht mit Kesselhaube dar. **A4** Die Wollhose, die eine gewisse Elastizität besass, wurde mit dem Wams, bezw. Hemd, durch Nesteln (*points*) oder Zickzackverschnürung verbunden. Die Hosen wurden oft hinten aufgemacht, wie es hier dargestellt ist. **A5** Banner von Glarus im Jahre 1388 bei Näfels getragen.

B: Schweizer Banner und Standarte (1) Hauptbanner Zürich, im Burgunderkriege. (2) Landesbanner von Schwyz. (3) Banner von Obwalden im Burgunderkriege. (4) Freiburg, 1410 und im Burgunderkriege. (5) Stadtbanner Winterthur, 1405. (6) Nidwalder Fähnlein. (7) Banner von Thun 1476. (8) Banner von Thun, 1400. (9) Zuger Banner (nach Schilling) (10) Zürcher Banner. (11) Banner von Solothurn. (12) Banner von Luzern (13) Bieler Fähnlein. (14) Basler Banner. (15) Banner von Unterwalden.

C: Schweizer Banner und Standarte (Fortsetzung) (16) Wappen vo Rudolf von Erlach. (17) Von Bubenberger Wappen. (18) Wappen von Han von Hallwyl. (19) Zürcher Schützenfahne *c.*1512. (20) Wappen des Grafe von Kyburg, 1466–70. (21) Wappen des Grafen von Valengin. (22) Wappe des Niklaus von Diesbach. (23) Wappen des Peters von Greyerz. (24) Wappe des Grafen von Neuenburg, *c.*1350. (25) Rennfähnlein der Stadt Bremgarten 2. Hälfte des 15. Jahrhunderts. (26) Appenzeller Fähnlein. (27) Nidwalde Fähnlein. (28) Basler Auszugsfähnlein.

D Hakenbüchsschützen: Bern *c.*1470. Die taktische Rolle der Hakenbüchs war Anfang des 15. Jahrhunderts noch sehr beschränkt. Jedoch, während de Burgunderkriege gewann sie erheblich an Bedeutung. Trotzdem schient dies Waffe unter den Eidgenossen nicht besonders beliebt gewesen zu sein. Di Schützen wurden meistens aus den Zünften rekrutiert. Verschiedene Kopfbedeckungen sind hier abgebildet. Der Schütze im Vordergrund trägt ein Haube; links trägt ein Berner den Eisenhut mit Augenschlitz. Die Berne Schützen wurden immer von einer roten Schützenfahne begleitet.

E1 Hauptmann in Panzerrüstung mit geschlitztem Rock. Der Rock is burgundischer Mode. Zu bemerken ist die Binde um den Schallern. **E2 und** Eidgenössische Hellebardenträger eines ländlichen Fähnleins. Der rechts stehende Fussknecht trägt eine Art Turban als Kopfbedeckung. Beide sin mit dem typischen Schweizerdegen bewaffnet. **E4** Ein Hellebardenträge mit Schallern. **E5** Der Harsthornbläser von Uri. Das weisse Feldzeichen—da Schweizerkreuz—wurde in der Schlacht bei Laupen zum ersten Mal getrage Dieses Zeichen taucht später in gestempelter Form auf oder wird auf di Rüstung mit Farbe aufgetragen. Es ist noch ungewiss, inwieweit jede Ortschaft ihre Krieger mit den Kantonalfarben ausgestattet hat. Im Jahre 144 sind 400 schwarz-weiss angekleidete Freiburger auf Bresse marschiert. Be Grandson traten die St Gallen ganz in rot auf.

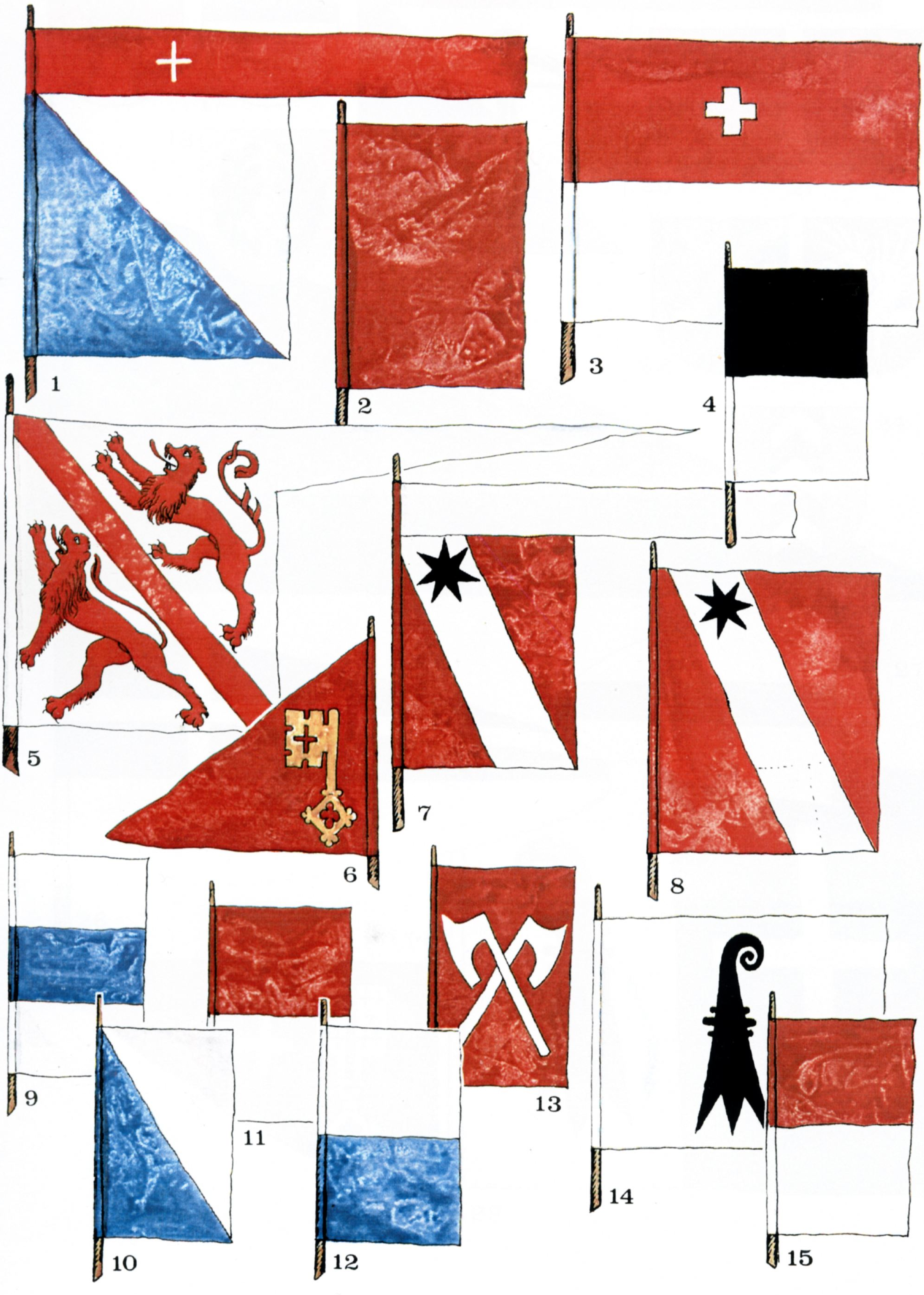
F1 Berittene Armbrustschütze. Gewöhnlicherweise begleiteten die berittene Armbrustschützen den Vorhut und kämpften meistens zu Fuss. Er trägt eine Schallern mailändischer Herkunft. Das Bruststück der Panzerrüstung wurd damals oft, wie hier, mit Tuch überzogen. **F2 und 3** Berittene Armbrustschützen. Bemerkenswert ist die lederne Schützhülle, die öfters um de Bogenteil des Armbrusts gewickelt wurde. Die mechanische Spannvorrichtung (*cranequin*) wurde von den Eidgenossen im Gegensatz zur Wind bevorzugt. Typisch für die Reiter dieser Periode sind auch die heruntergekrempelten Stiefeln. **F4** Toter burgundischer Bogenschütze (nach Schillin abgebildet). Der ausgepolsterte Rock mit hohem Kragen und der gross Köcher sind besonders bemerkenswert.

G1 und 2 Pikenträger *c.*1460 in Kettenhemd und Panzerrüstung. Der kniend Eidgenosse trägt einen Helm mit Ohrenschutz (*cervelière*) während de Stehende den Eisenhut mit Augenschlitz als Kopfbedeckung hat. **G3** Pikenträger in Kantonalfarben. Erst nach der Schlacht bei Arbedo (1425) wurd die Pike zur Hauptwaffe der Eidgenossen. Diese Stangenwaffe hatte ein Länge von 5 Meter. Gewöhnlicherweise trugen die ersten Reihen de Schlachtordnung eine volle Panzerrüstung, um der Wucht des Zusammenpralls mit den feindlichen Truppen Kraft zu verleihen. **G4** Spielleute Pfeifer, Trommelschläger und Dudelsackpfeifer.

H1 Fähnrich, Bern *c.*1510 nach einem Glasgemälde in der Stadtkirche z Lenk im Simmental. Der Fähnrich war immer seinem Rang entsprechen gekleidet. Die Straussfeder und der Turban sind typisch für die Eidgenosse dieser Periode. Zu dieser Zeit wurde auch die aus Oberitalien stammend Schlitztracht Mode. **H2** Verschiedene Eidgenössische Fussknechte in de damaligen Kriegestracht. Im Gegensatz zum schrägen Andreaskreuz, da von den Landsknechten Maximilians z.B. bei Dornach als Erkennungszeichen getragen wurde ist das hier abgebildete Schweizerkreuz als Hauptfeldzeichen der Eidgenossen aufgetreten.

Footsoldiers of the period 1300 – 1400
See text for commentary on individual figures

Banners, Fähnlein and Heraldry: see text for key and detailed commentaries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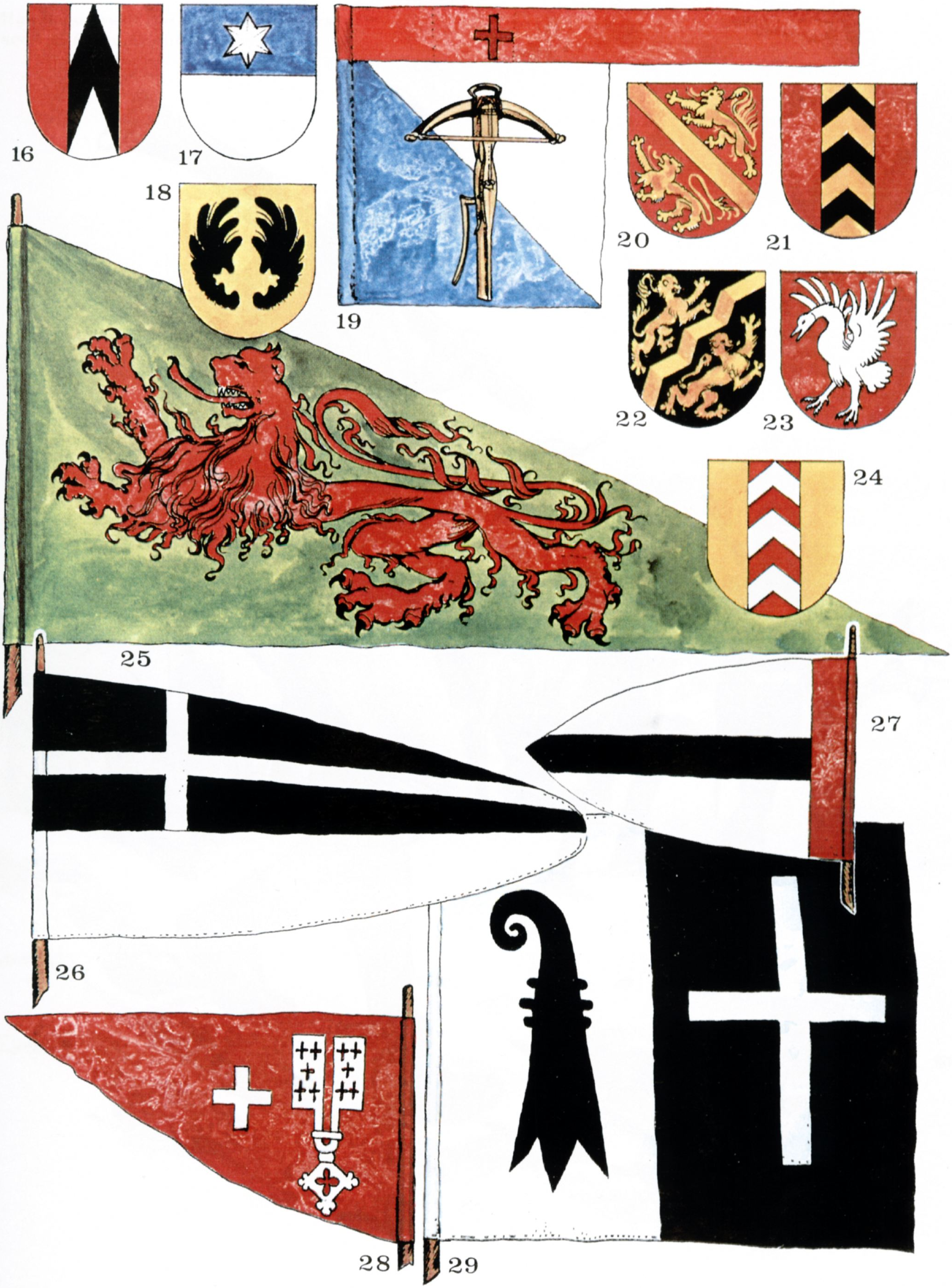
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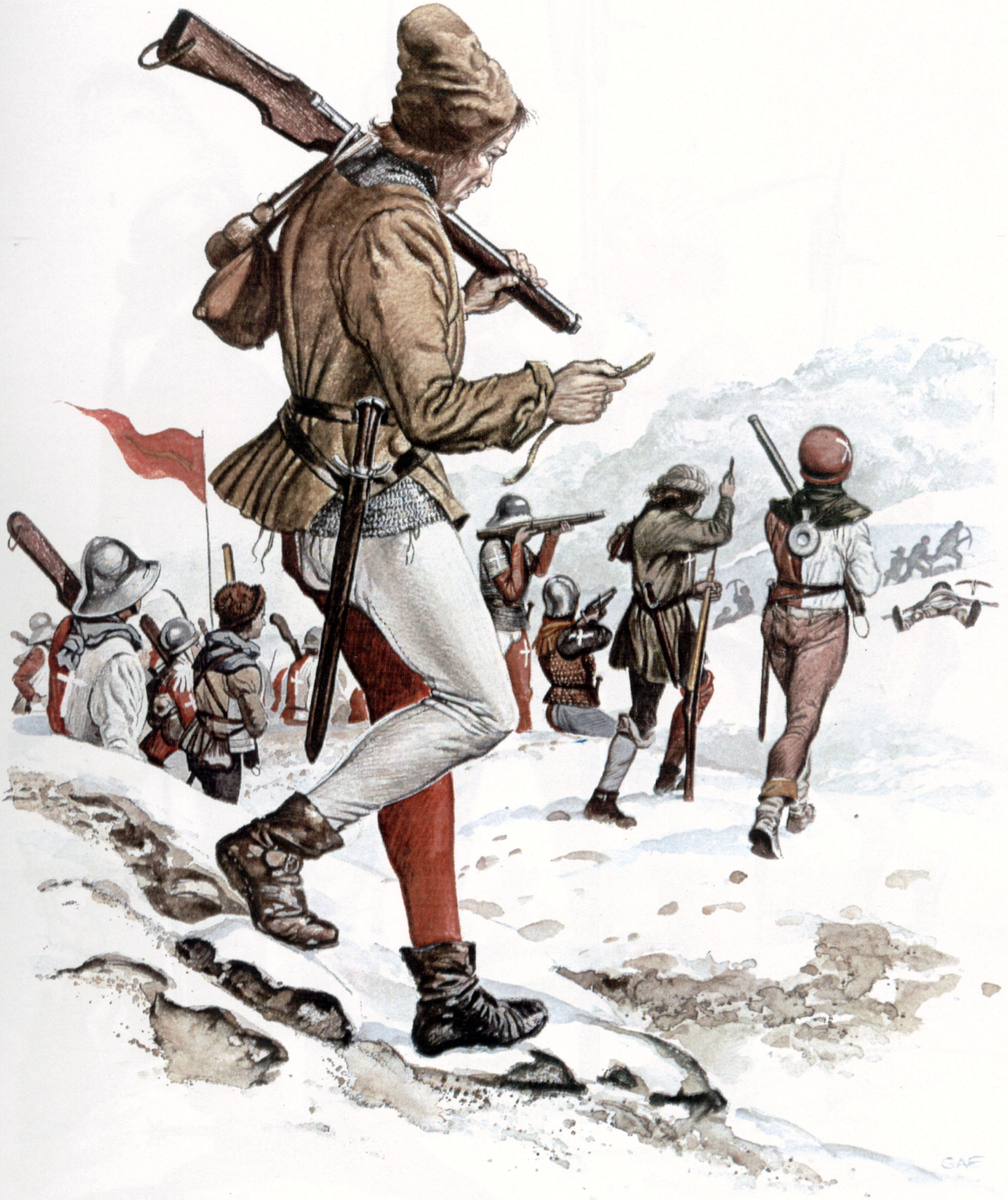
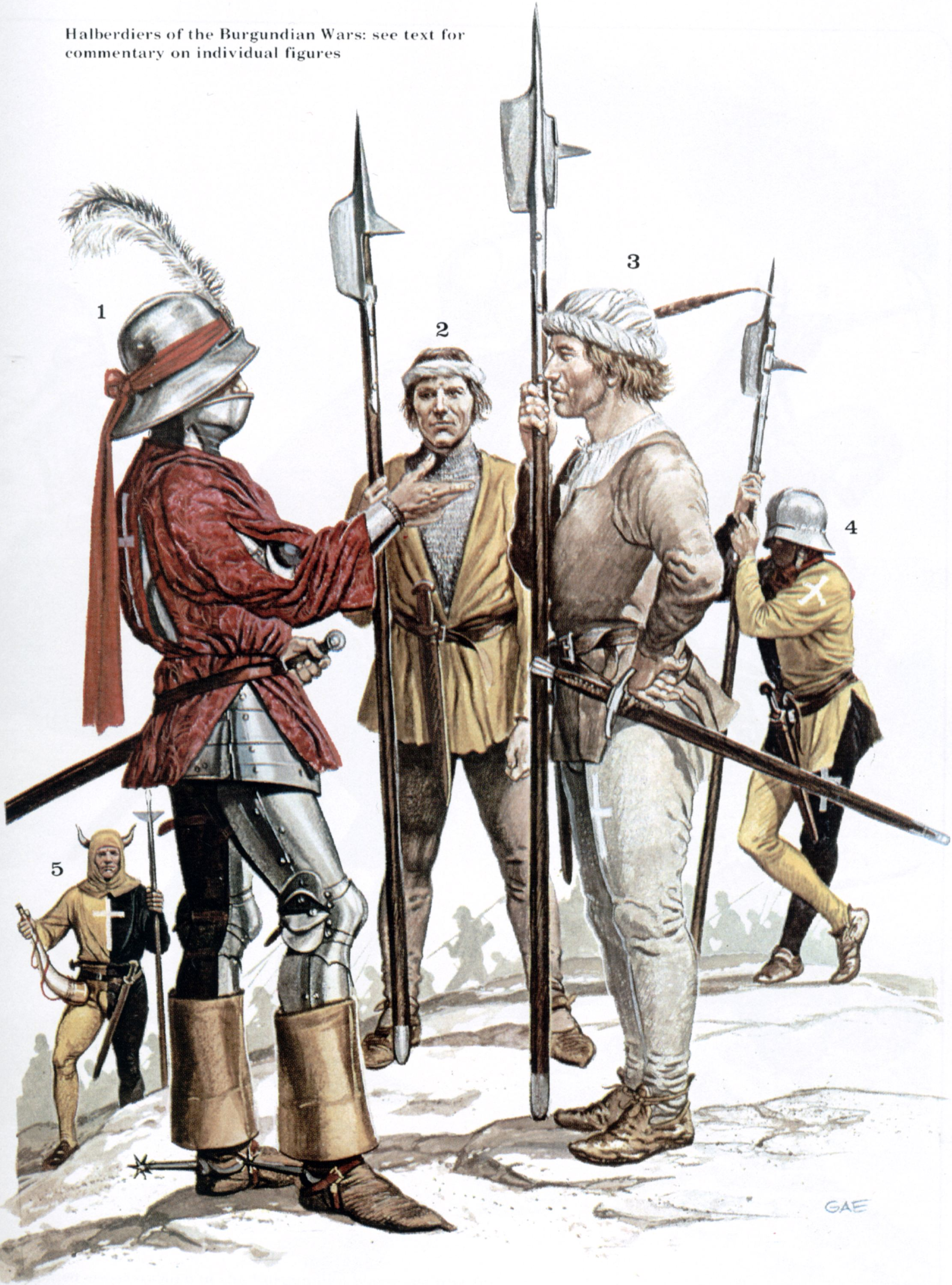
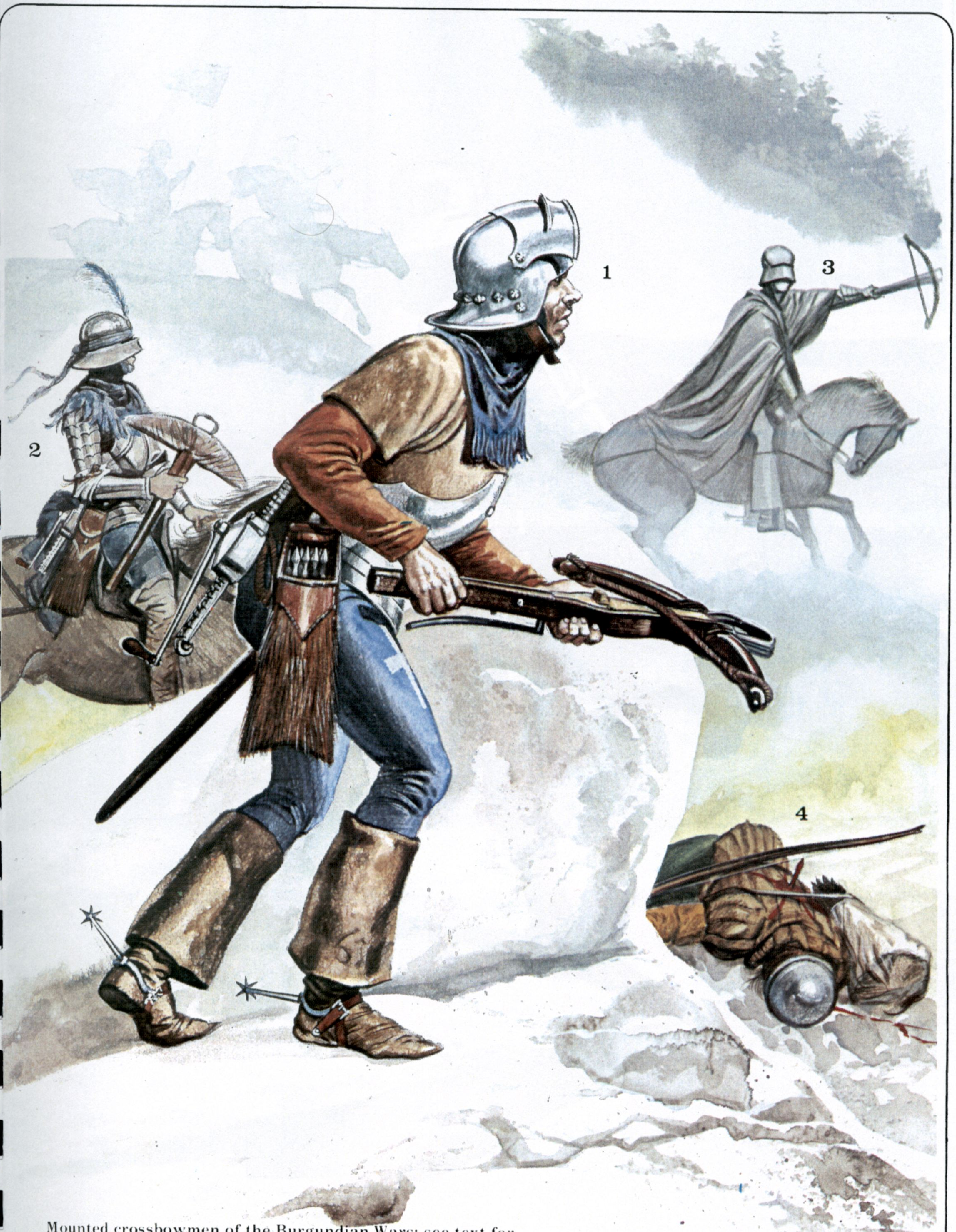
Handgunners of the Burgundian Wars:
see text for commentary



Halberdiers of the Burgundian Wars: see text for commentary on individual figures





Mounted crossbowmen of the Burgundian Wars; see text for commentary on individual figures

Pikemen of the Burgundian Wars; see text for commentary on individual figures

Flagbearer of Berne, and Swiss troops, *c.* 1500 – 1510